

# A RECLASSIFICATION OF REAL ESTATE AND MARKET ANALYSES: TOWARD IMPROVING THE LINE OF REASONING

by Maury Seldin, CRE

Feasibility, like value, is a word of many meanings. The essence of feasibility is doability, but the meaning varies according to the constraints imposed.

## Feasibility

Financial feasibility refers to the attainability of financial resources and results that will make the project worthwhile. It can hinge on the availability of a mortgage loan or of equity money. Development feasibility generally refers to the obtainability of building permits or other required consents, or to the project's ability to meet regulatory requirements. It can also refer to the physical practicability of a project, perhaps in terms of the regulatory environment, as in the case of a site that must be engineered to yield a specified number of lots or intensity of use at a reasonable cost.

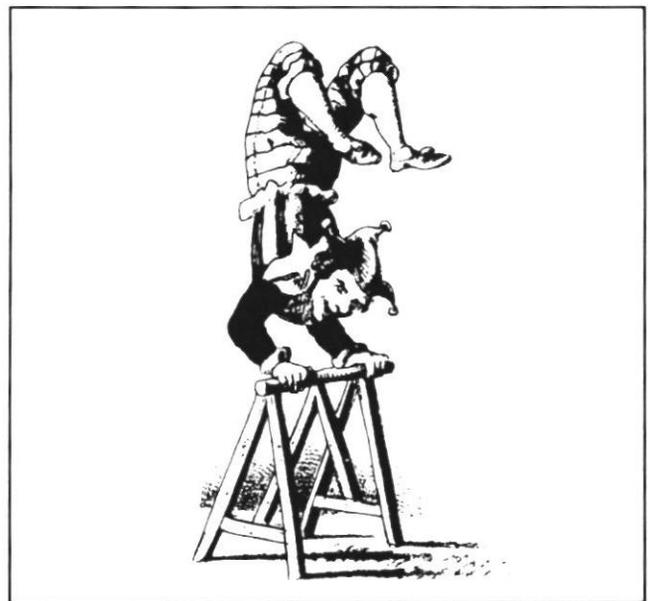
Obviously, financial feasibility and development feasibility are related. A simple statement of "feasibility" refers to doability in the broad sense. The difference in types of feasibility refers to the constraints.

Feasibility can be viewed from the vantage point of a developer, an investor or a lender. Each would have his own criteria. If a developer, for example, sees that enough

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potential profits can reasonably be expected within the constraints he is prepared to accept on the resources available, he will consider the project feasible. It may be actually doable at a profit below the developer's target profit, but from the developer's viewpoint the constraint of a minimum profit is essential to the determination of feasibility.

As a start toward building a framework for structured analyses, let us consider a development decision. The developer would reasonably proceed if the expected profit were sufficient. The expected profit in turn depends upon the expected value of the completed project and its expected costs:

$$\text{expected profit} = \text{expected value} - \text{expected costs}$$

or, on an after the fact basis:

$$\text{profit} = \text{value} - \text{costs}$$

### *Profit*

Profit can be expected or realized. It can be before tax or after tax. It can be earned but not realized in the sense that it remains in the project and removal may be deferred in order to defer the time when the profit will be taxed. The model can handle all of these.

The basic idea is that profit is what is left over after all obligations have been taken care of. It is a residual. It is not owed to anyone or by anyone. One may pursue it and if the values created exceed the costs, it will be obtained.

### *Value*

Value is what one will give up in exchange for something else. In economic terms we often deal with "market value" which expresses a ratio of exchange of one good compared to all other goods. In appraising, the market comparison approach specifically addresses the question of market value. Its logic is that a property is worth what equally desirable substitutes are worth, while the worth of equally desirable substitutes is indicated by prices paid in the market.

We may also deal with "investment value" which expresses the present value of future benefits to an investor. It too represents a ratio of exchange. The ratio used in comparing properties is the capitalization rate or discount rate, which expresses the relationship between what one will give up today and what one will get in the future. That rate or ratio varies with the risk and is subject to competition in the market place; the competition is in the selection of an investment among alternative investments, the higher risk alternatives requiring higher rates to induce investors. The alternatives may have the same general risk-reward features as other comparable real estate investments, or they may be substantially different compared to the risk-reward features of bonds, mortgages or other financial assets. The difference in capitalization or discount rate between individual properties or classes of property reflects differences in types of risks as well as in the extent of risk applicable to any particular type.

The appraisal process is well suited to reach this kind of "investment value." We will pursue this analysis using the income approach and the investment value concept, later returning to market value.

As an aside, it can be noted that the income approach uses three residual techniques and that two of these techniques split the property income between land and improvements. Such a methodology provides an excellent basis for reconciling differences in results obtained through a market comparison approach and the income approach. It is based upon the use of market-determined capitalization or discount rates, presumably using the same comparable property to determine (a) the indicated value of the subject property by direct comparison and (b) the capitalization or discount rate used in the income approach.

### *Cost*

Cost, as used in the cost approach and elsewhere, is what has to be given up to get the resources. The cost of the land may be treated as an acquisition cost although valued by market comparison. The cost of the improvements is what it takes to acquire the resources and bring them together, including an entrepreneurial profit sufficient to induce the development.

If the value of what results is greater than the cost, then the project is likely to be built. More accurately, if the expected value exceeds the expected costs, then there is an expected profit that induces the entrepreneur to proceed with the development. The project is then said to be feasible.

## **Market Analyses**

### *Equilibrium*

If the market were in equilibrium, each of the three approaches would be expected to give the same answer, assuming of course that adequate information were available and that it were properly handled. One can readily show a reconciliation between the income approach and the market approach. Reconciling the cost approach with the other two approaches is based upon logic and certain underlying assumptions without any clear mathematical relationship except in the sense that cost may be used as an upper limit of value. The logic is that the expected profit is necessary to induce development. If the market is in equilibrium the expected profit is just enough for that purpose.

The problem is that markets are rarely in equilibrium. They are moving toward balance or overshooting the mark. There is an equilibrium point at which the market would be in balance but by the time the supply is adjusted to meet a previous change in demand, forces may have changed the equilibrium point. Further, the momentum of the supply process tends to carry the change in supply right on through the equilibrium point. The market thus goes rapidly from undersupply to oversupply. The resulting glut is then adjusted as the process reverses.

Rising prices serve to induce the increase in supply. A softening in prices signals the end of the need for more production. These changes in price levels yield different values at different times. Measuring the equilibrium point may involve using estimates of value based on market conditions that are unduly optimistic or pessimistic, and are often obsolete. Ideally, though, the market comparison approach shows the prices at which property is currently selling, and appraisers are well advised not to argue with the ticker tape.

If one really knew what future market conditions were going to be, it would simply be a matter of mathematics to convert the expected conditions to an income stream that could be capitalized. This process would give an investment value that might be higher or lower than market value. Reconciliation of the two figures is based upon differences in expectations about future incomes and

sales price, or on differences in capitalization or discount rates and procedures. The capitalization process may not derive its rates from the market for comparable projects, but rather from other investments having different degrees of comparability. Obviously, in an overpriced market knowledgeable investors become sellers, while in an underpriced market they pay no more than necessary even though they believe the market is undervaluing the property. In horse race parlance, it is an "overlay."

#### *Definition of Market Analysis*

Within this framework market analysis may be defined as follows: "An analysis of the effective demand at prevailing prices for a specified quantity and quality of space services of a particular land use type and location."

The type of land use may be residential, commercial or industrial and may be further classified and segmented. The location may be a market area or site specific. If a market area, it may be as large as a metropolitan area, or as small as a neighborhood.

The effective demand is a relationship between societal need as measured in the market place with users and/or investors who are ready, willing and able to pay, and suppliers of space who are ready, willing and able to supply the space at prevailing prices.

Overlays, gaps in the market, windows, or whatever one chooses to call them, exist when it is exceptionally profitable to supply the need at prices currently obtainable. Overbuilt situations exist when at the prevailing price no more additions to supply are needed. The market system may adjust by reducing prices, which would enable more space to be absorbed, or by simply waiting until demand catches up.

### **CLASSIFICATION OF MARKET ANALYSES**

#### **Site Specific**

Site specific analysis refers to situations involving an identified parcel of real estate. All appraisals are site specific analyses. They are generally not considered market analyses, although they could be so considered.

An appraisal answers a question about the value of a parcel of real estate. It should utilize market analysis in the process although, as a practical matter, most of the analyses are of historical or current conditions and not of changing conditions and expectations, as they should be. This is a serious criticism because real estate changes hands in a market determined by expectations, so that one cannot reasonably be believed to be accurately interpreting and reporting market conditions unless one understands what is being expected by buyers and sellers in the marketplace.

Market analysis answers questions about the effective demand for real estate. In the case of site specific analysis the questions might be as follows:

1. What use should the site be put to?
2. What product should be provided?

3. What prices should be charged?

4. How fast will the product be absorbed?

The questions may not be asked in that order. Indeed, market analysis often starts at different points in a logical sequence. It is pursued to a line of detail sufficient to satisfy the decision maker, who then goes on to the next question or action. Later the analysis resumes at some other point in the logic, or even at the same point. The subsequent analyses are, however, usually much deeper in detail.

#### *Highest and Best Use Studies*

Highest and best use studies focus on the question of what use will give the land its highest value. The question is the use of the land to its greatest economic advantage. Consideration must be given of course, to all legally permitted uses and potential changes in permitted uses, although all of these need not be analyzed in detail.

A variation of highest and best use is "most probable use." The question in this variation is slightly different; it asks what use is most likely to emerge. Market or other conditions may be such that the timing of the development, or the entrepreneur who is likely to develop the land, is going to bring the property to some use other than its "highest and best" use, but instead the use that might be concluded to be the most economic under those conditions—hence, the most probable use.

#### *Targeting Analyses and Marketability*

Once a type of land use have been decided upon, with or without a highest and best use study, some decision on the market to be served must be made. The decision as to the type of land use specifies a market, but not in a great amount of detail because it deals with the physical product more than the users. A market can be met most effectively by understanding the needs or perceived needs of the users. One may even help them along so that they will perceive new needs or new ways to meet old needs.

A targeting analysis would sort through the demographics and other characteristics of the user population to see who they are and what can be sold to them. Such analyses apply to office space as well as housing, but housing examples are easier to use because one can readily see many factors of design and layout that would provide amenities responsive to the targeted group.

Traditional marketing literature would place this targeting within the concept of positioning oneself in the market. Positioning, however, places much more emphasis on strategy, cutting through a number of classifications.

Whether a profitable product comes out of the positioning process or more specifically out of a targeting analysis, the key question is the marketability of the product. Marketability is the obverse of targeting. In marketability one has a product and wants to know whether it will sell or rent. One then goes through a series of market analyses to make a determination.

Note that there are many types of market analyses. The term by itself, especially as generally used, is too vague to specify exactly what will be done in the analytical process.

#### *Competitive Analyses*

An analysis of the competition or potential competition may be called a competitive analysis. It will be used for marketability, judgments or positioning, and may also be used to set prices, or in fact appraising property—as it should be, in the market comparison and income approaches. It refers to shopping the competition and seeing other products and prices.

A competitive analysis is an excellent example of a component of analysis, that is, a subanalysis which may be used as a building block in other analyses. There are a lot of ways to combine and recombine such components.

#### *Absorption Analyses*

Given that there is a determination of the product and its price, the next logical question is how fast it will sell or rent. That question is answered by an absorption analysis.

A market analysis should always do more than focus on demand. It should also focus on supply, because it is the relationship between the two that makes the market.

An analysis of the forthcoming supply is a “pipeline” analysis. Its relevance at present is that the rate at which the market will take the product being supplied at a specific site depends in part on the rate at which others are supplying competing products. The price and quality as well as the character of those competing products are also important.

The result of an analyses of absorption is then a sales or rental rate, which will produce the dollar amount of gross receipts. These gross receipts, whether sales proceeds or rental income, are critical to the analytical system and we will return to them in due time. It is especially important to note here that this figure is very much dependent on the non-site specific analysis which we will discuss shortly.

#### **The Circuitous Route**

Our feasibility analyses require some form of value estimate. This estimate may be based upon an expected price, whether a sale or a rental, which produces a stream of income or cash flows, possibly projected well into the future. The net proceeds from the sale, whether now or deferred, or the value created by the development process influences its profitability, as does the net income stream, which is also related to the events that produce it. The value of the project depends upon the timing of the receipts as well as their expected amounts.

The site specific analyses just discussed entailed the selection of a product and then an analysis of expected prices and absorption rates, whether in terms of sales or rentals. The results of such an analysis will be value created whether or not the property is sold.

An analysis of the market forces that will generate the demand for the product typically requires greater atten-

tion than it is usually accorded. This is the key to value. An understanding of these forces is enhanced by focusing first on an aggregate analysis and then disaggregating. In the jargon of market analysis, this is a “top down” method. The disaggregation involves a segmentation of the market such that at some point market absorption is measured for a specific type of land use by price category and/or by location.

Many analyses may be done “bottom up.” In these cases absorption rates of competitive projects are used to forecast the absorption of the subject project. The method is useful for obtaining precision although not necessarily accuracy, as the approach extrapolates the past and is thus likely to miss the turning points.

What one wants is to aggregate the production rates of all the competition to see what will be produced for a particular market segment or segments. One may forecast the absorption rates for each of the competitive projects. The subject project carves out a share of the market and may be assumed to have a competitive absorption rate. Typically the market analyst ascribes a higher absorption rate to the subset than is typical in the market place.

Another way of getting at the size of the market is to disaggregate the market by segments. This “top down” method is excellent for identifying turning points, but the precision may be forced because data are generally not sufficient to justify the level of detail required. The results may be numbers that come out in spurious detail.

The combination of both techniques—“bottom up” and “top down”—gives the best results because the one gives a high level of detail for current activity close to the subject project while the other watches the major forces which should identify the turning points.

Relying on “bottom up” alone may bring “belly up.”

#### **Non-Site Specific Analysis**

Non-site specific analysis deals with market segments specified by geographical area, type of land use or tenure, without designation of a particular site or sites that are to be used to meet the demand. For example, while a site specific analysis may deal with the absorption rate for office space or single family houses, non-site specific analysis would forecast the absorption rate of a particular type and quality of space in a specified geographic area, whether sales or rentals are involved. Obviously, the analyst might be aware of a site that could fill the need, but the non-site analysis focuses on demand that might be filled by unspecified sites.

How is one to determine the extent to which the market demand exists for a particular segment? The key to not being caught in an unjustified extrapolation is to go to the fundamentals of demand, which require an understanding of the engine of the local economy. Employment or any other economic activity that commands income from beyond the borders of the community is that engine.

Analyses of the local economy are traditionally included in appraisal and market analyses. What is generally lost is

the line of reasoning between this non-site specific analysis and the conclusion of value, absorption or feasibility.

#### *Local Economy*

Everyone knows that appraisals and market analyses must include a section on the local economy. They may not know why; indeed, they may not know how. What is usually done is to provide a description of the local economy.

Somehow after providing the description the author leaps to a conclusion, without a visible line of reasoning. To identify this line it is useful to discuss particular types of land use. For this purpose we will use housing and industry although the principles have broader coverage.

The local economy may be analyzed using a variety of techniques. These include:

1. Economic Base Analysis
2. Location Quotient Analysis
3. Shift Share Analysis
4. Input-Output Analysis

Economic base analysis projects basic employment and utilizes the relationship between basic employment and non-basic employment to project total employment. It may then use the population/employment relationship to project population. The analysis of economic base may be used not only for projections of growth, but also to assess stability. Employment data are typically handled by the use of a Standard Industrial Classification Code (SIC Code). Thus we can see what kind of employment drives the local economy.

Location quotient is a form of analysis that relates the percentage of employment in a local area in any particular classification to the percentage of employment in that same classification in a larger area, typically the United States as a whole. The resulting ratio, when greater than 1.0 to one, indicates a concentration in the specific type of employment. When less than one, it indicates less than average employment in that category. These ratios or index numbers may then be used to indicate the relative importance of each type of employment.

Shift share deals with a changing structure of employment. It looks at changes in the local economy as they relate to changes in other local economies.

Input-output analysis is the most sophisticated technique of local economics. It relates changes in one employment sector to changes in other employment sectors so that the effect of forecasted changes as they reverberate throughout the local economy may be more precisely measured.

When making an analysis of the housing market it might be sufficient to deal with the question: "Is the growth and stability of the local economy strong enough over the short term to enable the for-sale project to be absorbed?" If it is a small project in size and share of the market, very little detail is required.

If, however, the project is a major one in both size and market share, then the growth of employment needs to be

projected and related to population so that the population forecast can be used to provide an aggregate analysis of housing demand.

In the case of industrial or other basic space the level of detail required might be such that each employment classification should be used in an employment forecast, permitting the quantity of space demanded to be estimated.

#### *Aggregate Analysis*

The analysis of the local economy should give an output which becomes an input into the aggregate analysis. In the case of housing, this output is the forecast of growth in number of households.

The net income for households is adjusted in the aggregate analysis to reflect new demands for additional units. The adjustment includes consideration of loss from inventory and changes in vacancy rates.

In the case of industry or other basic employment the number of employees is translated into space required by use of the ratio of space to employees. The result can be an aggregate amount of building space that could later be segmented; or, the analyst might go directly to segmentation.

#### *Segmentation Analysis*

Segmentation analysis is based upon a disaggregation. Thus, total housing demand is divided by tenure (ownership versus rental), and may be further segmented by type of construction (e.g., single family dwelling versus multi-family) or price classification. It might also be segmented by location (e.g., by county within a metropolitan area).

Segmentation for industrial or other basic space may fall into a variety of classifications. Indeed, the aggregate analysis and the segmentation analysis may be done at the same time. An analysis for an industrial park, for example, might look at the change in employment in general while also looking at a change in employment for the specific type of occupant required, coming up with a forecast of the net additional requirement for that kind of space. Such an analysis might be further segmented by location.

#### *Supply Analysis*

In each case consideration must be given to what is being supplied as well as the changes in demand. Whether or not society needs more space in the locality and for the particular land use can be determined by such analyses.

The results of the aggregate analysis, however, provide too coarse a grain to enable the analyst to see into the niches in the market at the finest level of detail shown in the segmented analysis. The market as a whole may be overbuilt, but there may yet be excellent opportunities in submarkets.

The population analyses are made both for aggregate analysis and segmentation analysis. The level of detail in pipeline analysis depends on the questions being asked.

One should not, however, underrate the importance of the aggregate analysis, because the segmented markets are related. Overbuilding in one segment may reverberate to other segments; an excessive supply of rental units, for example, may depress sales because renting is such a bargain. Or an excessive supply of prime or high quality space in the best locations may depress markets in less desirable locations and reduce prices at the inferior locations because such good bargains are available at the better ones, providing a lot more services for a little more money.

### Absorption Analysis

One may conduct an absorption analysis as a follow-up to a segmentation analysis by simply focusing on the quantity which is likely to be absorbed in any period of time. An analysis of the supply situation will indicate whether the particular segment of the market as to type, price and location is currently being over- or under-supplied. What is done on an aggregate basis is to determine the quantity which would be absorbed.

On a site-specific basis one looks at the share of the market a particular project is likely to get. If one aggre-

gates the absorption expected in a period of time for all the known projects and makes some allowance for potential projects not yet announced, one comes at the same answer from the "bottom up." The connection between the "top down" and the "bottom up" is made at this absorption point.

### CONCLUSION

This classification, or really reclassification, of analysis has pointed out that it is very useful to see the relationship of the disaggregation of demand to the various site specific analyses in order to determine absorption rates. In addition, the absorption rate is critical to the profitability of the venture and the profitability judgment is critical to successful real estate decisions. The key lies in a line of reasoning. What this reclassification has done is provide a structure for that line of reasoning.

Real estate analyses which do not contain a line of reasoning are of little use except perhaps for the data they might contain, which would in turn be used by someone else in his or her own line of reasoning. The key is to understand what is really involved in the various types of analyses.

#### Mathematical Formulations and Classification of Analyses

Look at these ideas in terms of mathematic formulas although it is not necessary to quantify them at this point:

##### Analysis of Local Economy: Economic Base

1.  $\frac{\text{Non-basic}}{\text{Basic employment}} = \text{economic base ratio}$
2. Project increase in basic employment
3.  $\frac{\text{Change in basic employment}}{\text{change in non-basic employment}} = \text{ratio}$
4.  $\text{Change in basic} + \text{change in non-basic} = \text{total change}$
5.  $\text{Existing employment} + \text{change} = \text{total employment}$
6.  $\frac{\text{Population}}{\text{employment}} = \text{ratio of population to employment}$
7.  $\text{Change in employment} \times \text{ratio of population to employment} = \text{Change in population}$

##### Aggregate Analysis: Housing Market

8.  $\frac{\text{Population}}{\text{Household size}} = \text{households}$
9.  $\text{Households} + \text{inventory loss} + \text{vacancy change} = \text{Net additions}$

##### Segmented Analysis: Ownership Market for Sub-Metro Area

10.  $\text{Net additions} \times \text{ownership ratio} = \text{ownership units}$
11.  $\text{Ownership units} \times \text{local area share} = \text{units demand in local area}$
12.  $\text{Units by income class (according to distribution of household income for local area)} \times \text{ratio of}$

$\text{income to house price by class} = \text{units (share of market) by price class}$

##### Absorption Analysis: Includes Segmented, Supply and Bottom Up Analyses

13.  $\text{United by price class} - \text{units in pipeline in subject class} = \text{net demand for additional space in period}$
13. (alternative)  $\text{Units by price class} \times \text{competitive share obtainable} = \text{absorption rate for period}$
13. Bottom up  $\text{Summation of absorption rate of comparative projects most similar to subject} - \text{number of competition projects} = \text{average absorption rate}$   
 $\text{Average absorption rate} \times \text{superior factor} = \text{project absorption rate}$

##### Feasibility Analyses

14.  $\text{Projected absorption rate} \times \text{gross receipts per unit} = \text{projected gross}$
15.  $\text{Projected gross} - \text{costs} = \text{projected profit for period}$
16.  $\text{Summation of projected profits for period to sell-out discounted to present value} = \text{aggregate profit}$
17.  $\text{Expected profit} - \text{minimum profit, if positive signals go}$

Note that substantial refinement in analyst's technique is available for steps 13-17. Only one crude measure has been used. What is critical are steps 1 through 13 which is where opportunity is determined.