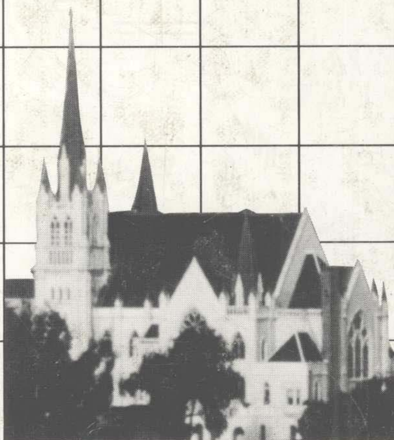
REAL ESTATE

James B. Kau • C. F. Sirmans



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PREFACE

One of the difficulties in teaching an introductory course (including real estate) is the diversity of reasons that students have for taking the course. In our experience, the reasons include (1) it is a required course (major), (2) it has the reputation of being an easy elective, (3) "it will help me make money in real estate," (4) "it will help me get a license to sell real estate," and a host of others. As a result, the objectives of the course (from the instructor's perspective) are difficult to identify. Obviously, however, if the instructor doesn't have a goal, the course turns into the usual mundane lectures of description or of beating some obscure technique (such as land residual appraisal) to a slow but completely revealing death. Both result in agony and pain for the student.

Our view, however, is that a principles of real estate course can be exciting to teach and to learn. Since we assume that the course will be taught in a business college and that the student is a business major (generally), why not present the material in the typical business school tradition—why and how to solve business decisions? But what about housing, you may ask? No problem is our response. Just view housing as an asset about which certain decisions must be made and analysis must be performed.

Another problem with a principles course is that sometimes there are too many "principles." In reality, of course, there may only be a few major concepts to be taught. The critical question becomes: What framework should be used in order to teach these principles? In this text, we have adopted the real estate investment decision as the framework. Around this decision, we can build all of the major concepts and principles of real estate analysis—those of risk, return, valuation, financing, sales contracts, the legal environment, and the understanding of real estate markets. As a result, the institutional framework (such as income tax, law, and so forth) in which real estate decisions are made can be demonstrated and become relevant to the student. Also, the major "techniques," such as appraisal, discounted cash flow models, or supply and demand, can be taught without being ends unto themselves. Don't misunderstand; the "investment decision" process applies to all real estate problems such as whether or not to buy, or sell, or build, or rent, or finance with a particular mortgage, or select one method of disposition

of a property over another, whether to convert to another use, and a wide variety of other situations.

Our goal is not to explain and analyze all real estate problems in detail, but to provide the student with a framework and a set of tools that can be used in a variety of situations. Indeed, we would consider our task as having failed if the student cannot take the tools and apply them to what at first glance appears to be a "new" problem but on inspection reveals itself as the same "old" problem but in momentary disguise. (The problem sets at the end of the chapters are designed for this purpose.) The student should also realize that there are a variety of professions in the real estate industry that deal with the various components of the "investment" decision. Examples include brokers, appraisers, lenders, property managers, tax assessors, planners, and so forth. We hope some students may even be persuaded to make their career in one of these aspects of the business.

Our view is that students in the principles course should master a set of concepts that enables them to solve the wide range of real estate-related problems (both social and private) facing the marketplace and government. As a means to this end, the principles must be taught as tools of analysis, applied to a wide range of real estate problems. Indeed, the application should be taught first, then the tool. We recommend a three-step approach. The first step is to examine a specific real estate problem. From the initial examination of the problem, we can make some observations and hazard a few guesses about the symptoms, causes, and effects of the problem. The second step is to analyze this information systematically using the basic tools and concepts which are applicable to the problem at hand; the result of this analysis will point to a solution to the problem. The knowledge gained from solving this specific problem can then be applied to other problems and situations; this is step 3 of the process. Without it, the real benefit of the solved problem is lost. Thus, the application of basic principles to specific situations will result in new tools which can be applied to other situations.

Obviously, the dedication of the instructor is required to understand the concepts thoroughly, to keep searching for new applications, and to have the motivation to do more than provide artificial, shallow questions to which students will respond with equally artificial, shallow answers.

This text has been planned around the objectives of enabling students to make real estate decisions: whether and how to lease, buy, sell, or mortgage; how to understand (and, therefore, how to predict) the forces in the market that determine real estate values; and a host of other decisions. To our knowledge, ours is the only real estate principles text planned in this way. We cover the same general concepts as most others but tie the material together in such a way as to focus on the decision-making objective.

Before the student can understand the decision-making process, the basic tools of financial analysis must be mastered. Part One of the book provides an overview by helping the student see the full picture of the real estate world and by introducing the basics of value, risk, and compound interest, essential to any investment decision. Part Two of the book takes the student a bit further by expanding upon

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the general financial concepts from Part One and applying them to specific real estate valuation and investment principles.

At this point, some suggestions for studying Parts One and Two are in order. For students who have had basic business finance and accounting courses, Part One will likely appear to be a review. For others, it will contain new, and perhaps seemingly difficult, concepts to grasp. However, the importance of a thorough working knowledge of these concepts cannot be underestimated, because they underlie the decision-making focus of the rest of the book. Students to whom present value concepts are new should diligently study Chapter 3 until they feel comfortable with it.

Other students, who have had finance and accounting courses in the past, ought not to take Chapter 3 too lightly, however, because it has been our experience that often these concepts are not learned fully the first time around. In addition, the application of them to real estate problems presents them in a new and different light which may make problem-solving difficult at first.

For both the initiated and uninitiated student, the key to mastering the concepts in Parts One and Two is doing the problems at the end of the chapters until they are completely understood. The problems are not only designed to teach the concepts in the chapters themselves, but also to introduce new, possibly unfamiliar, real estate terminology to the student. As a result, the chapter problems may require some brief explanation from the instructor before the student can begin working them. Thus, the problems serve as an excellent basis for in-class discussion as well as for individual study.

Once Parts One and Two have been mastered, Parts Three, Four, and Five can generally be studied in any order, depending upon the primary focus of the course and the preferences of the instructor. Regardless of the direction taken by the class, it is our feeling that the student who has an interest in a real estate career will find this text to be an excellent resource for the variety of disciplines – finance, economics, and law – which provides the foundation for real estate knowledge today.

We would like to express our thanks for the many useful comments and suggestions provided by colleagues who reviewed this text during the course of its development, especially to Roger E. Cannady, University of Illinois at Urbana-Champaign; Jack Harris, Texas A & M University; Austin Jaffe, Pennsylvania State University; Ken Lusht, Pennsylvania State University; Hal Smith, University of Florida; and James Webb, University of Akron.

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PART ONE

SOME BASIC CONCEPTS

Part One introduces some concepts basic to real estate analysis and decision making and some underlying principles that are used throughout the remainder of the book. Some of these concepts are probably new; others you have probably seen before. We will reinforce the familiar ones and show you how to apply the new ones to a variety of real estate decisions.

Chapter 1 provides a general overview of real estate: what it is, the types of decisions it involves, and its unique characteristics. Chapter 2 discusses how real estate values are determined in the marketplace, specifically, the relationship between risk, return, and value, which is fundamental to understanding and solving real estate problems. Chapter 3 reviews the basics of compound interest and present value. One of the key elements in value determination is the timing of the returns, and how to deal with the time element is what compound interest is all about in value estimation. Value is at the heart of all real estate decision making: whether to buy a house, rent an apartment, buy an office building, develop a shopping center, make a mortgage loan, borrow on a mortgage, lease or buy office space, and a host of other real estate decisions. The concepts in Chapter 3 provide the foundation for understanding decision-making involving real property.

CHAPTER 1

INTRODUCTION

What Is Real Estate?
- BUNDLE OF CHARACTERISTICS
  - The Value of a House
  - The Value of Other Real Estate
  - The Value of the Service Flow
  - The Rental Value
- THE PARTICIPANTS
  - The Equity Investor
  - The Mortgage Lender
  - The Tenant
  - The Government
- REAL ESTATE IN THE ECONOMY
  - The Importance of Real Estate to the Economy
  - Employment in Real Estate
  - The Quality of Life

What Is Real Estate Analysis?
- MODELS FOR DECISION MAKING
  - Demand for Real Estate
  - Supply of Real Estate
  - The Equilibrium Value
  - Information Cost
  - Good versus Bad Models
- TYPICAL QUESTIONS AND DECISION SITUATIONS
  - How Much Should I Pay?
  - Debt and More Debt
  - Location, Location, Location
  - A House Is a Home
  - Patterns of Urban Land Use
  - The Ultimate Investment?

Why Study Real Estate?
- HETEROGENEITY
- INSTITUTIONAL FRAMEWORK
- HOW TO ESTIMATE VALUE
- IS LAND THE BASIS OF ALL WEALTH?

Summary

Questions

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Real estate, both as an asset and as a business, plays an important role in our lives. We all must have a place to live; business firms must have locations—real estate—from which to run their operations. These real estate assets must be paid for, and to obtain the necessary money, individuals and firms sell and buy pieces of paper called "financial assets." These pieces of paper have value because they represent a set of claims against the real estate. Financial assets include such items as mortgages, leases, and equity positions.

The major decision facing the participant in real estate is the investment decision. What assets should be invested in? How much should be invested? Where should the investment be made? For example, a mortgage loan, to the lender, is an investment for which all of these questions (and others) must be answered.

The success of real estate decisions is judged by value. Thus, a "good" investment decision results in the purchase of a set of property rights that are worth more than they cost. For example, suppose you are considering the purchase of an apartment building. If the value of your investment is worth more than you have to pay, then the apartment building is a good investment. This is a simple statement. The problem is how to do it.

The first section of the book explains the tools necessary to analyze, value, and invest in real estate. First, however, let us determine what real estate is.

WHAT IS REAL ESTATE?

When most people think of real estate, they think of buying or selling a house, appraising and investing in property, studying commercial and residential development patterns, and offering or securing mortgages. The term "real estate" actually covers three areas: land and buildings, the business or industry of real estate, and the academic field of study. Although we will discuss all three areas in this book, let us look briefly at each now.

Real estate is not just land. It is land and all the structures placed on that land. In some cases real estate is the air above the land and the ground below the surface as well, but in its most general sense real estate as property is the land and everything connected to or touching it. A car driving across a stretch of land would not in most cases be considered part of the real estate, for example, whereas a tree growing on the same land would. In this aspect real estate provides shelter in the form of homes, offices, and factories; the means for transportation in the form of streets, roads, and highways; and areas for recreation in the form of beaches, forests, and parks.

The business or industry of real estate includes buying, selling, leasing, and mortgaging of land and structures. Both individuals and institutions function to transfer either the ownership of property (in a sale) or the right to occupy it for a fee (in a rental). Individuals such as brokers, lawyers, appraisers, and surveyors and institutions such as banks and government agencies all play a role in the exchange of ownership or rights. This exchange is the *real estate market*, and it functions in much the same way as any other market.

Real estate as a field of academic study is the application of economics, man-

agement, marketing, and finance to the real world. Economics, as you know from your other courses, is the study of how limited resources are allocated to produce various commodities. Finance, a part of the field of economics, studies how individuals and firms allocate resources over time. Real estate combines economics and finance in looking at how land and structures affect this allocation process both at a point in time and over a period of time. Real estate as property and as a business continues to affect our lives through rising housing prices and rental fees, controls placed on the use of land, zoning restrictions, the price of gasoline and heating fuel, migration to and from the cities, loan interest rates and government policies concerning them, the money supply, patterns of recreation, and so on. Academic study of real estate can yield an understanding of how these factors affect real estate and shape the quality of our lives. In sum real estate appears in many different shapes and sizes. Each property is a bundle of characteristics which can be described in detail. Next we discuss how these characteristics vary and how they are conceptually measured.

Bundle of Characteristics

Real estate is a diverse product. Land can be flat or mountainous or rolling. It may have running water or be a desert. A house may have hardwood floors and cedar shingles or cement floors with aluminum siding. Houses and land and, in fact, all real estate are a combination of many separate and diverse items. These items may have very little in common. A house, for example, consists of bathrooms, light switches, insulation, windows, the local fire protection, water faucets, and doors. Separately these items are entirely different commodities, but together with many other items, they form a house. Many of these items could be bought separately. They seldom are. Instead people purchase the entire bundle as one item — a house. A *house* or any *real estate* is the sum of all its characteristics, including the neighborhood, the local schools, the police protection, and the fire protection. Many buyers decide on a house not on the basis of its structural characteristics or on the size of the lot but on the basis of the public facilities available. The sum of the private and public characteristics is what is called a house. Each characteristic has a value, and the house has a value. The value of the house and the sum of all the individual characteristics' values are equal.

The Value of a House When you read the newspaper, the houses listed for sale have prices such as $50,000, $100,000, $90,000. What do these prices represent? They represent the total price of all the expected benefits and costs of the house over time. The house provides a flow of services (benefits) to the people living in it. This flow can be broken down into an infinite number of items, including the pleasures you receive from privacy, air conditioning, fireplace, carpets, dishwasher, crown molding, showers, running water, hot water, and so on. The total value of a house can be thought of as the sum of all the individual values from all the different service flows over time. The value of individual service flows in the future is less than the value of current service flows; this change in value is referred

to as "discounting," and the total value of a house is the discounted value of the services over time, or its *present value*. This sum or present value is the $50,000, $100,000, $90,000 prices listed in the newspaper. (See Chapter 3 for further explanations of present value.)

The Value of Other Real Estate The same concept of total value applies to all real estate. Commercial buildings such as office buildings, warehouses, and department stores have a flow of services that is provided to the owner or tenant. The value of these commercial buildings equals the discounted total value of the flow of services. Of course, a warehouse's flow of services may be entirely different from a house's, but the concept of value is the same. When investors determine the value of a commercial building, they implicitly or explicitly assess the value of the service flow from the building. In a sense all real estate structures are treated as capital goods that provide a benefit that has a value. The valuation process identifies the flow of services and places a discounted value on them.

The Value of the Service Flow The service flow from a house, commercial building, or any form of real estate is the sum of all the individual components that provide benefit. Trees, air conditioning, and heating are some of the many examples. The value of a tree, for instance, may be determined by the desire of home buyers to have trees. The same is true for air conditioning and other service flows. Each component of a real estate structure whether it be a house or an office building has an individual value which contributes to the total value of the structure. The value of each component is determined separately, although this may not seem the case because purchasers are usually presented with an aggregate price for structures. A $30 million price for an office building is actually the sum of all the discounted values of each of the building's components.

Buyers need not identify the individual component values when the product is standardized and easily recognized as the desired type. In some cases individual components have become obsolete, as in a used office building with noninsulated windows and walls, or are functionally obsolete, as in a poorly designed house. Thus components of used real estate may have declined in value, which must be included in a determination of value. In summary, real estate is a collection of characteristic components whose values can be summed to determine the discounted aggregate value of the real estate. There are several valuation techniques available, and all take into account the individual characteristics of real estate in one way or another.

The Rental Value So far we have used the word "value" to mean the discounted total (present) value of the real estate, real estate defined as land and all structures on that land. If someone pays the total discounted value for real estate, for example, $90,000 for a house, that person is buying the service flow from that house for its entire life. However, many people do not desire to purchase the service flow of a house for a long time period. The purchase of real estate for short time periods is usually impractical because of high transaction costs, such as closing

costs and sales commissions. These people will rent. What is rent? *Rent* is the value of the flow of service for a shorter time period. In a rental agreement for 1 year, the renter agrees to purchase from the owner the flow of services for a shorter time period—1 year. The renter thus avoids closing and other costs and is protected from declining values of real estate. The owner gets a market rate of return for providing the rental services and the possibility of the real estate asset appreciating while earning income. The rental and ownership markets are closely related but have separate characteristics which we will analyze later.

The Participants

To understand the multitude of decisions in real estate analysis, we must understand the economic and legal interrelationships among the major participants. Figure 1-1 illustrates the four major participants in real estate analysis: the equity investor, the mortgage lender, the tenant (user), and the government.

Each participant has different, and often conflicting objectives. Each places constraints and restrictions for the overall feasibility of a decision. We must carefully analyze each major participants' objectives and "rights" in real estate.

First, however, what about other participants such as the real estate broker, the appraiser, the tax accountant, the developer, the property manager, and the tax assessor? Obviously, all are important, but they tend to play only a temporary role in some aspect of real estate analysis. Indeed, it is easy to see where some of these interact in Figure 1-1. The property manager, for example, simply interacts between the landlord (in Figure 1-1, the equity investor) and the tenant. The real estate broker typically interacts between one equity investor (seller) and another equity investor (buyer) and helps each to understand the interrelationships in the investment.

The Equity Investor For the most part the *equity investor* as owner is the ultimate decision maker. The equity investor can use any of several forms of business entity for ownership of an investment, including ownership as an individual, a partnership (limited or general), a corporation, or a real estate investment trust (REIT). Each form has advantages and disadvantages. The form chosen will influence the impact of taxation on a real estate investment, the debt liability to which the equity investor can be exposed, the degree of control over the investment, and the relative ease of transferal of ownership in the investment. The equity investor must carefully consider the form of business entity for ownership since it will greatly influence the investment decision.

Equity investors are interested in the amount of benefits, such as cash flow or wealth, they can obtain from an investment. Benefits (cash flows) arise from two sources: the annual flow from operations and the flow from the sale (or other disposition) of the investment. In addition, investors must make certain that they have the rights to the cash flow; without these rights, the real estate is valueless and the investment will fail. These rights are *property rights* and are the investors' expectations or actual legal determination about what they can do with the real estate. All uses of land and structures are determined by the property rights.

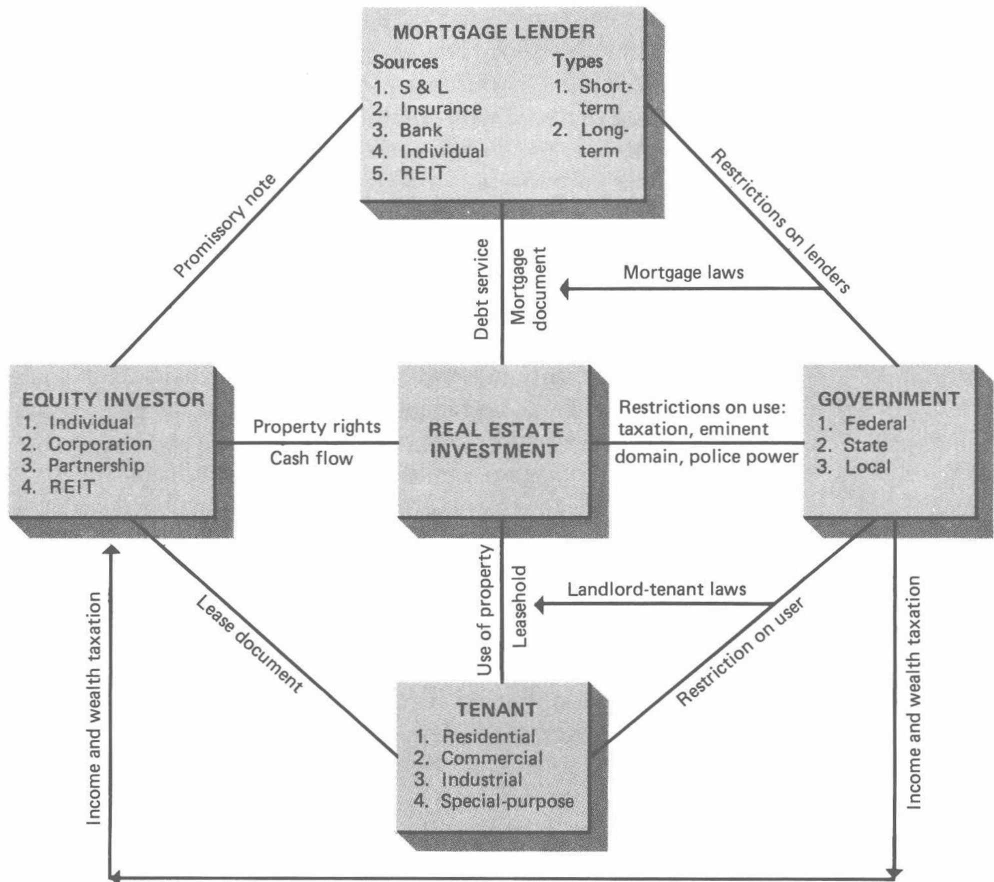

FIGURE 1-1 Participants in real estate.
(Source: Austin J. Jaffe and C. F. Sirmans, *Real Estate Investment Decision Making*, © 1982, p. 9. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, N.J.

The Mortgage Lender The second major participant is the *mortgage lender*. Practically all real estate investments use borrowed funds, for several reasons. The first is that most real estate investments require large sums of capital, and borrowing enables investors to participate in capital investments before they have amassed such sums. Another reason is *leverage*. Leverage enables the equity investor to change the risk-return aspects simply by borrowing funds and using them for investment purposes. Although leverage may increase the rate of return on an investment, it also increases the amount of risk. The investor must be careful of this tradeoff between returns to equity, borrowed funds, and the increased risk from borrowing.

In general, a *mortgage* is a loan secured by a pledge of real estate as collateral. The mortgage pledges the real estate as security and specifies the conditions of

the loan. The second major legal instrument in a mortgage transaction is the *promissory note*. This note is the evidence of the indebtedness and the promise to repay the loan. Each document must be carefully analyzed by the investor.

The Tenant The third major participant is the user of the real estate — the *tenant*. The tenant buys the immediate right of possession from the owner in exchange for the payment of rent. The tenant's rights in the real estate are referred to as a *leasehold estate*. The tenant's demands must be carefully analyzed, for without tenants, there is no income for the equity investor.

The *lease* binds the equity investor and the tenant. It is a contract under which the tenant (lessee) obtains the right to use the property from the landlord (lessor). Leases are usually written, regardless of the period of occupancy, to provide a legal document as reference in case of disagreements on the use of the property between the tenant and the landlord.

The Government The fourth participant in a real estate investment is the *government*. It influences the interrelationships between the equity investor, the mortgage lender, and the tenant. The government restricts the use of property, and it restricts the lenders through such actions as usury ceilings, portfolio requirements, and lending regulations. One of its greatest impacts is *income taxation*. Income taxation influences the investment decision with many complex rules and regulations. The impact of an investment's potential tax benefits and costs has significant effect on value.

Real Estate in the Economy

The *gross national product* (GNP) measures the total of all goods and services produced each year in the U.S. economy. The division of GNP by population gives the *per-capita gross national product* (PGNP). The PGNP is a standard measure of welfare for a nation. A rising real PGNP indicates a better standard of living for the people.

Notice that the word "real" was used. GNP is measured in dollars, and under inflation, the dollar value of all goods increase. An increase caused by inflation does not mean that the standard of living has improved. To adjust for the misleading effects of inflation, GNP is often measured relative to some base year. The effect is to subtract out those increases due to inflation while leaving in those increases due to rising productivity. This corrected form is often referred to as *constant dollar* or *real GNP*. (See Chapter 12 for a detailed discussion of the impact of inflation on real estate.)

The Importance of Real Estate to the Economy Per-capita real GNP has been rising for many years in the United States. What role has real estate played in this dramatic increase in the standard of living? Table 1-1 provides the answer. The evidence is clear: real estate has an important impact on the growing U.S. economy. Real estate as a percentage of private-business GNP has remained relatively

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