Volume 15
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REAL ESTATE ISSUES

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AMERICAN SOCIETY OF
REAL ESTATE
COUNSELORS

A NEW LOOK FOR REAL ESTATE ISSUES

In keeping with the growth and evolution of real estate counselors and our Society, the editors of REI have chosen to adopt a new design for the journal. Of course, we will continue to provide incisive and timely articles on the myriad of issues associated with the study and practice of real estate analyses.

Hopefully, you will like this new look, and we certainly invite your comments, pro or con. The Society sincerely appreciates the continuing interest of our readers and authors alike.

From today's perspective it appears that the real estate markets of the 90s are being substantially influenced by the convergence of a few key issues: the recapitalization of our financial institutions, the absorption of regional oversupply inventories and the impact of inflationary macro-economic influences (oil prices). The results of these forces already have impacted real estate prices, development and personal investment strategies. As real estate professionals we are faced with having to make challenging decisions on these issues.

Each edition of REI considers the vast array of technical skills and professional talents of our readership. As you consider today's issues and problems, cast them to writing. Manuscript submissions or suggestions should be forwarded to Real Estate Issues, Managing Editor, 430 N. Michigan Avenue, Chicago, IL 60611.

Editor in chief

REAL ESTATE ISSUES

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1990 BALLARD AWARD PRESENTED TO LAWRENCE S. BACOW

Lawrence S. Bacow

Lawrence S. Bacow, Ph.D., author of the article "Foreign Investment, Vertical Integration and the Structure of the U.S. Real Estate Industry," has been named the 1990 recipient of the William S. Ballard Award. Given annually by the American Society of Real Estate Counselors, the honor recognizes the author whose work best exemplifies the high standards of content maintained in the journal.

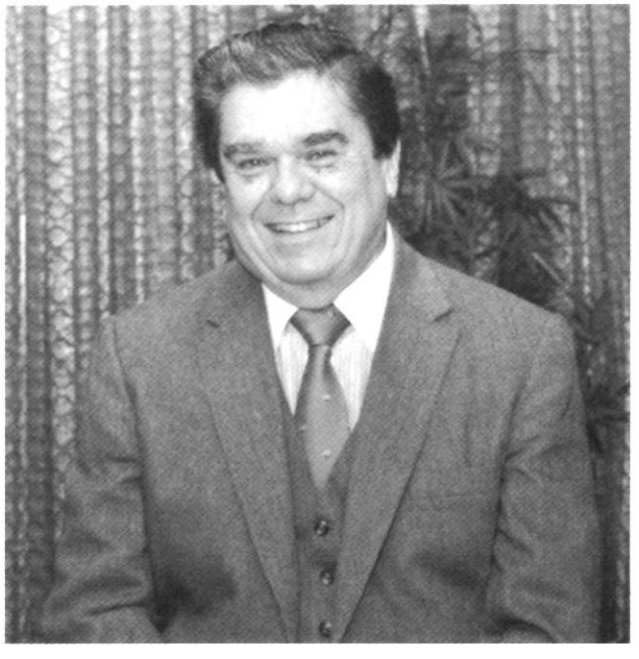
In his article, featured on page one of this edition, Bacow describes the phases of a two-part project that analyzed the patterns and investment objectives of foreign buyers in Los Angeles, Chicago, Washington, D.C., Phoenix, Atlanta and Honolulu. The project also looked for evidence that foreign firms were branching out beyond the passive acquisition of properties into other real estate-related businesses including construction, development, leasing, property management and financial services. The paper specifically addressed the question, "Does passive ownership of U.S. properties by foreign investors foreshadow vertical integration of foreign firms into related real estate businesses?" In his findings, Bacow illustrated that foreign investors have not yet figured out how to overcome the structural obstacles that confront the companies seeking to vertically integrate in the U.S. real estate industry.

Professor Bacow is the director of the MIT Center for Real Estate Development. A member of the MIT faculty since 1977, Bacow's teaching and research experience span a number of fields including real estate finance, regulation of the development process, bargaining and negotiation theory, risk assessment and environmental policy and regulation. He received his B.S. degree in economics from MIT, his J.D. degree from Harvard Law School and his Ph.D. from Harvard's Kennedy School of Government.

Funding for the William S. Ballard Award, which carries an honorarium of $500, is provided by the generous contribution of the William S. Ballard Scholarship Fund in memory of Ballard, a late CRE (Counselor of Real Estate). Previous recipients of the award include Lynne B. Sagalyn, CRE (1989), Michael Farrell, (1988), Alexander Bul and Nicholas Ordway (1987), Joseph O'Connor (1986) and James A. Graaskamp (1985).

Articles for consideration in next year's competition must be submitted to the Society by August 1, 1991.

CHARLES W. BRADSHAW, JR. RECEIVES THE LOUISE L. AND Y. T. LUM AWARD



Charles W. Bradshaw, Jr., Emeritus CRE

Charles Bradshaw, Jr., Emeritus CRE, of Raleigh, North Carolina has been named the 1990 recipient of the Louise L. and Y.T. Lum Award. This honor recognizes Bradshaw's distinguished contribution to the advancement of knowledge and education in the real estate counseling profession.

The award was established by the late Y.T. Lum, CRE, to encourage the continuing professional education of those engaged in real estate counseling through an understanding of its principles, theories, techniques and practices. Bradshaw's distinguished career exemplifies the standards set forth by this award.

In 1945, Bradshaw began his career specializing in real estate counseling, appraising, brokerage and financing, primarily in North Carolina. Since then, he has worked on projects involving all types of property including residential, single-family, multi-family, industrial, commercial and shopping centers.

Within the state, Bradshaw was named Realtor of the Year by the North Carolina Association of Realtors where he served as president. Also, as a member of Governor Scott's Cabinet, he was appointed Secretary of the Department of Natural and Economic Resources. Locally, as a Raleigh City Councilman, he was a member of the Planning Committee and was instrumental in adopting Raleigh's first minimal housing standards.

An active member of the Society since 1960, Bradshaw has served on the Board of Governors, as a vice president and represented the Society on the National Association of Realtors Executive Committee. He also founded the North Carolina Chapter of the American Society of Real Estate Counselors in 1984. His other professional affiliations include the American Institute of Real Estate Appraisers and the American Chapter of FIABCI.

Previous recipients of the Louise L. and Y. T. Lum Award include CREs Jared Shlaes (1989), John R. White (1988) and Thurston H. Ross (1987).

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In the past few years, foreign investors have shown an increasing appetite for U.S. real estate. The growing interest in this investment by foreign buyers has raised questions about the long-term consequences of these acquisitions for U.S. real estate markets. Specifically, does passive acquisition of existing buildings by foreign investors foreshadow vertical integration into related real estate businesses and activities?

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THE PRESIDENT SPEAKS

AN ECONOMY ON THE FIRING LINE

In this last quarter of 1990, the savings and loan disaster has mushroomed to proportions beyond worst expectations; recession, averted for several years, now confronts the economy; a credit crunch is affecting much of the business world — certainly the real estate industry; and global political tensions abound, particularly in the Middle East.

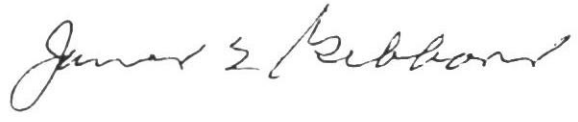
How does this impact the CRE (Counselor of Real Estate) and other real estate professionals? Increased difficulties and responsibilities challenge professional performance. Forecasting is a major element in most counseling assignments. Each of the adverse conditions already mentioned could affect the future performance of real estate investments. The Counselor must continually update and broaden his information base. A careful reading of the articles in *Real Estate Issues* will surely accomplish much of this mission.

Regarding the S&L crisis, billions of dollars of real estate assets have to be liquidated at enormous expense to the U.S. taxpayer. To minimize the impact on the national economy, disposition programs should be based on realistic valuations, workable financing arrangements and effective marketing procedures. The Resolution Trust Corporation has a major responsibility in these areas. However, progress has been slow and pressures are building. The CRE is well qualified to address and assist in solving the burgeoning problems. He provides a background of judgment and integrity and an unexcelled network of experienced professionals.

More than anything else, the real estate industry needs a healthy expanding economy. But, a reading of the tea leaves reveals that following almost eight years of expansion, cyclical tendencies are indicating a slowdown. Then too, with serious concerns about inflation, Federal Reserve is conducting a monetary policy aimed at achieving an economic "soft landing." Further, if it is not completely derailed by current activities in the Middle East, the long hoped for defense curtailment will entail serious cutbacks in all the industries involved.

A negative fallout from the S&L crisis is the prevailing credit crunch. The banking industry is finding it hard to discern merit in most loan requests, particularly those for real estate development and construction. Finally, Fed is reluctant to provide the economy with interest rate relief when foreign money rates have climbed to where it is difficult for U.S. Treasuries to be competitive abroad. The role of the CRE is increasingly demanding since all these elements must be considered in the calculus of investment decisions.

Political tensions and fear of war have the potential to alter or nullify the best thinking on economic strategies. Years ago an eminent economist had a large following because of his willingness to make forthright predictions. He never closed a lecture without the caveat: "If there is a shooting war, all bets are off." This is now a sound position for all forecasters.



James E. Gibbons, CRE
President
American Society of Real Estate Counselors

FOREIGN INVESTMENT, VERTICAL INTEGRATION AND THE STRUCTURE OF THE U.S. REAL ESTATE INDUSTRY

Does foreign investment in U.S. real estate merely change the nationality of passive owners? Or does it signal the restructuring of the real estate industry in this country?

by Lawrence S. Bacow

In 1987, the Massachusetts Institute of Technology (MIT) Center for Real Estate Development in partnership with the National Association of Realtors began to explore the impact of foreign investment on U.S. real estate markets. The first phase of this project studied patterns of foreign investment in three cities: Los Angeles, Chicago and Washington, D.C. The objective was to gauge the magnitude of foreign investment and to understand the investment objectives of foreign purchasers. The results of phase one were published as MIT Center for Real Estate Development Working Paper Number 12, "Understanding Foreign Investment in U.S. Real Estate," by Lawrence S. Bacow. The next phase of the project revisited the same three cities 12 months later to determine if investment patterns had changed, and it examined investment patterns in three smaller cities: Phoenix, Atlanta and Honolulu. This phase also looked for evidence that foreign investors were branching out beyond the passive acquisition of existing properties into other real estate-related businesses. The results of the second phase of the project were reported in MIT Center for Real Estate Development Working Paper Number 16, "The Internationalization of the U.S. Real Estate Industry," also by Lawrence S. Bacow. This paper describes what was learned about vertical integration during the second phase of the research, and it explores the structural implications of the trends in foreign investment that were reported in the earlier phases of the project.

Foreign investment in U.S. real estate is not a new phenomenon. Offshore investors have had a healthy appetite for our land and buildings since the Dutch purchased Manhattan Island from the indians in 1626. In recent years, foreign investment has been fueled by a cheap dollar, a strong U.S. economy, a stable political environment and tremendous liquidity on the part of foreign buyers. U.S. real estate has been particularly attractive to foreign buyers because it offers a higher cash yield than is available in most other countries (8-10% in the United States versus 2% in Japan and 5-6% in much of Europe) and because it is plentiful. Our markets are large; we place few, if any, restrictions on foreign ownership; and in contrast with building transactions in other countries, our buildings change hands relatively frequently. Thus, a foreign investor can more easily assemble a substantial portfolio of investment-grade properties in the United States than in other countries.

Since 1982, foreign holdings of U.S. real estate have more than doubled.[1] Initially, foreign investors focused on entry port cities such as New York, Los

Lawrence S. Bacow *is the Director of Research for the Massachusetts Institute of Technology Center for Real Estate Development. A member of the MIT faculty since 1977, his teaching and research span a number of fields including real estate finance, regulation of the development process, bargaining and negotiation theory, risk assessment and environmental policy and regulation.*

Angeles, Washington, D.C., and Chicago. However, as foreign investors have become more familiar and experienced with U.S. markets, they have expanded the locus of their acquisitions to smaller cities in the nation's interior. Perhaps no city has felt the impact of foreign investment more than Los Angeles where offshore investors now own interests in more than half the office space in the central business district. Substantial foreign holdings also exist in Atlanta, Phoenix and Honolulu. In fact, it is difficult to identify a single city of any size in the United States that does not have foreign real estate holdings.

Foreign investors' increasing interest in U.S. real estate has raised questions about the long-term consequences that these acquisitions will have for U.S. real estate markets. In a previous paper, I argued that passive acquisition of U.S. buildings by foreigners is essentially benign.[2] U.S. markets are too large to be controlled by foreign investors from any one nation. Far from being speculators, most foreign owners are long-term investors who maintain high standards for building maintenance and management. As a result, foreign ownership tends to introduce stability, not volatility, to U.S. markets. Tenants tend to be either ignorant or indifferent to the identity of their landlord. And contrary to popular belief, foreign purchasers do not possess any competitive advantage in acquiring U.S. properties because of supposed access to lower cost capital.

In this paper, I will analyze whether passive ownership of investment-grade properties by foreign institutions foreshadows vertical integration by foreign firms into related real estate businesses.

The Current Degree Of Integration

Real estate companies in other parts of the world are far more integrated than they are in the United States. Perhaps the most striking example of such integration is the Japanese homebuilder, Misawa Homes. Misawa not only designs, builds and sells its homes, it also manufactures many of the homes' component parts, provides financing through a subsidiary to the ultimate purchaser, offers interior design services to its customers and even sells home furnishings through one of its divisions. Similarly, the Mitsui and Mitsubishi companies develop, finance, own, lease and manage their commercial properties throughout Japan. European real estate firms also have a tradition of vertical integration.

Already, foreign firms are competing to provide construction, development, leasing, property management and financial services to the U.S. real estate community. Our survey of foreign investment practices in a number of U.S. cities revealed a substantial amount of foreign real estate activity that extended beyond the passive acquisition of existing buildings (see Table 1). For example, Shimizu, Ohbayashi and Kumagai Gumi, three of Japan's largest construction companies, have significant operations in the United States, and they are competing for large-scale contracts. These companies also have used their development subsidiaries to gain entry into the U.S. contracting business. Some of Korea's largest contractors have established subsidiaries in the United States, and several Japanese and European firms function as their own developers in southern California, Washington, D.C., Honolulu, Phoenix and Atlanta.

L.J. Hooker, an Australian company, is perhaps the best example of a foreign firm that has integrated into a range of related real estate businesses. In Australia, Hooker is active as a major developer, property manager, contractor and commercial and residential broker. In addition, the firm has mining interests and produces some building products. The company entered the U.S. real estate market 14 years ago as a developer of shopping malls; it subsequently expanded into residential development. In the past two years, Hooker further integrated its U.S. operations by acquiring two major retailers, B. Altman and Bonwit Teller, as well as Merrill Lynch's commercial brokerage house.

Mitsui Fudosan has followed a pattern of expansion and acquisition in this country that parallels its activities in its principal market. It has purchased existing properties in the United States, entered into joint ventures with U.S. developers, acquired a property management company on the West Coast to manage its portfolio (Aspen Woods), started a residential brokerage operation in Honolulu (Mitsui ReHouse) and established a syndication to provide services to Japanese individuals who wish to invest in the United States. It also is developing a major office tower in Los Angeles and has retained the Gerald D. Hines company on a fee basis for development services.

Some foreign companies are pursuing other strategies. For example, foreign banks are aggressively competing for the construction lending business and are seeking to place permanent financing for properties located in the United States.[3] And in the past few years, several foreign firms have purchased interests in U.S. real estate companies. For example, Orient Leasing, a Japanese brokerage and financial investment firm, acquired a share of Rubloff & Co.; Nomura Securities purchased 50% of Eastdil Realty; and Dai-Ichi purchased a 40% interest in LaSalle Partners.

I would like to argue that, notwithstanding the flurry of foreign activity noted here, the size and structure of the U.S. real estate industry precludes large-scale vertical integration by foreign firms or their domestic counterparts. The future restructuring of the U.S. real estate industry will be driven not by offshore investors seeking to integrate but by the continuing institutionalization of a previously highly entrepreneurial and atomistic industry. U.S. providers of services to the real estate industry will face foreign competition, but this competition will be no greater than the competition experienced by service providers in other industries.

To make the above argument in a coherent fashion first requires an analysis of the rationale for vertical integration.

TABLE 1

Foreign Firms Active in Real Estate Related Businesses in the United States

Firm	Location	Activity	Nationality
Campeau	Cincinnati New York Boston	Development Retailing Property management	Canada
City/State	Washington, D.C.	Development	Australia
Hasegawa Komuten	Honolulu New York San Francisco Los Angeles	Investment Development Construction Brokerage Property management	Japan
L.J. Hooker	Atlanta Phoenix Stamford, CT	Development Construction Brokerage Retailing	Australia
Julien Josephs	Washington, D.C.	Development	Australia
Kumagai Gumi	New York	Development Construction Finance	Japan
London & Leeds	New York Boston Washington, D.C.	Investment Development	Britain
Manhattan Equities	New York	Investment Development	Brazil
Mitsui Real Estate	New York Los Angeles Honolulu	Investment Syndication Development Property management	Japan
Ohbayashi	Los Angeles	Development Construction	Japan
Okada	New York	Brokerage	Japan
Olympia & York	New York	Investment Development Property management	Canada
Ronald HSU	Maryland	Construction	Korea
Shuwa	Los Angeles	Investment Development	Japan
Shimizu	New York Phoenix Los Angeles	Development Construction	Japan
Tobashima	New York Los Angeles	Investment Development Construction	Japan

This listing represents only those foreign firms that responded to a survey conducted in July, 1988.
Source: K. Carignan McNeil and L. Bacow.

Why Integrate Vertically?

Vertical integration is the act of incorporating into a firm a technologically distinct service or product or a process that was previously purchased by the firm or sold by others in the marketplace. For example, a company that is principally in the oil refining business would be integrating vertically if it were to enter into oil exploration or production and

the crude oil transportation business. It would also be integrating vertically if it distributed its finished products on a wholesale or retail basis.

A variety of reasons are commonly cited in the industrial organization literature to explain why firms integrate vertically. Unfortunately, the traditional rationales are of limited usefulness in trying to understand why real estate firms might integrate.

The most common explanation for vertical integration is to capture various types of economies of production or distribution. Often, firms view these choices as buy/make decisions. However, as long as a market is relatively efficient, a firm should not be able to make a product more cheaply than it can buy the product in the marketplace unless the process of integration itself generates efficiencies. Porter identifies a number of integration economies.[4]

Combined Operations
Sometimes combining operations yields savings by reducing the number of steps in the production process. In the classic example of hot rolling steel, if steelmaking and rolling are combined, the steel does not need to be reheated prior to rolling. In the real estate business, efficiencies that result from combined operations are few and far between. Although combining road work with site preparation may bring about some savings if a residential developer can avoid bringing heavy equipment to the site more than once, the same economies can be realized simply through efficient scheduling of subcontractors.

Scheduling And Coordination
An integrated firm may realize scheduling and coordination economies by sequencing activities carefully. For example, inventory can be controlled better if a firm coordinates the production of both factor inputs and final products. Once again, however, scheduling and coordination economies are rarely issues in the real estate business. Producers and suppliers of intermediate goods and services are highly disassociated. As a result, multiple sources of supply exist, and except for strikes, rarely is development interrupted or delayed by an activity that could be controlled through vertical integration. Instead, delays usually result either from weakness in demand for the product or from regulatory problems.

Information Economies
Vertical integration may produce information economies by generating data on changes in the preferences of customers or on the cost of producing particular products. This is the principal explanation why developers (and building owners) often market and manage their own space. For example, the housing developer who markets his own product gains firsthand knowledge of the consumer's willingness to pay for certain amenities. Similarly, the owner who manages his own buildings learns much about the preferences and future space requirements of his tenants as well as the costs of operating his buildings. The developer with a captive construction company has substantial cost estimation information in-house and may be able to exercise more control over quality. For the foreign investor seeking to build a large portfolio, acquiring a brokerage company may represent a reasonable strategy for acquiring market information.

Efficient Production
Integration may yield savings by allowing a firm to substitute a series of internal transactions for those that otherwise would be conducted in the marketplace. If contracting is cumbersome and time-consuming, the integrated firm may have an advantage in bringing products to the marketplace through a more efficient production process. For example, the developer with a captive construction company in theory does not have to go through a lengthy bidding process in the development of a construction budget. In reality, however, dealing with captive providers is often as difficult as dealing with market providers. Captive subsidiaries are not subject to the same competitive pressures as independent providers, nor are they motivated by the fear of losing the job. As a result, they are often less efficient and less responsive than independent competitors.

Input And Demand
Perhaps the strongest reason to integrate vertically is to ensure a continuing supply of needed factor inputs or a demand for the firm's end products. Until the Federal Home Loan Bank Board put a stop to this practice, developers in the Sunbelt were acquiring thrifts largely to ensure a ready source of capital (arguably their most important factor input) to finance their development activities. Developers also have acquired construction companies to ensure that their projects would receive adequate attention during times of peak construction activity. Similarly, the evolution from construction to development is a natural one. The owner of a construction company already possesses the technical knowledge of how to build a building. As a general contractor, he already bears much of the construction risk for a project, and he does so for a relatively modest fee. By entering the development business, he can simultaneously generate additional business for his construction company and earn substantially higher returns. This strategy has been aggressively pursued by a number of Japanese construction companies, including Ohbayashi and Kumagai which have elected to enter the highly competitive U.S. contracting business by financing joint venture developments in which they also serve as the general contractor.

Institutional purchasers of real estate, both foreign and domestic, have integrated into the development business to ensure a steady stream of future products. In the past few years, domestic institutions, especially pension funds, have increased the portion of their assets that they wish to hold in real estate from about 3% to 10%. As a result, pension funds, in concert with foreign investors, have bid up prices for investment-grade buildings and bid down yields. To reach their target asset allocations, these investors have been forced into the development

business. Both foreign and domestic institutions now participate in equity joint ventures on development projects; they establish captive development companies; and they make equity-like investments in independent real estate companies.

The retail business is another example of integration in which developers and retailers work to ensure access to supply and demand. Some of the nation's largest shopping center developers (Taubman, DeBartolo, Campeau and Hooker) have invested in the retail business as a way of gaining control of major anchor tenants for their new developments. Sears has become a major developer of shopping centers through its Homart subsidiary. Retailers and shopping center developers integrate vertically because of the symbiotic relationship that exists between anchor tenants, smaller satellite tenants and shopping center developers.

Typically, shopping centers are anchored by a few very large national stores that act as magnets to draw customers to the site. These stores lease their space on extremely favorable terms, often generating little or no cash flow in excess of operating expenses for the developer/owner. With a strong anchor, a shopping center developer can obtain favorable financing as well as a good mix of smaller tenants on terms that typically provide for base rent plus a percentage of sales. Without an anchor, a developer cannot build a conventional shopping center. By controlling the anchor, the developer assures demand for his space, and he can prevent the anchor store from locating in a competing center.

Bargaining Power And Value

The previous discussion illustrates two rationales for vertical integration: to offset the bargaining power of suppliers or customers and to capture the value created through contractual relationships. Because of the important role they play in the development of a shopping center, anchor tenants wield enormous power in lease negotiations. The developer with a captive anchor offsets this bargaining advantage, at least with respect to his captive tenants. Similarly, the retailer that integrates into shopping center development captures for itself some of the value that is created through the signing of its own lease. In a weak office market, a major tenant may also succeed in capturing the value created through its lease by obtaining an equity interest in the building. Among national office users, International Business Machines, Inc., has pursued a strategy of joint venturing with office developers on projects in which IBM is a major tenant. This type of vertical integration occurs infrequently in office building development because, unlike a national retail anchor, an office tenant rarely attracts additional tenants to a building. Many small stores may wish to locate near a Sears store because they know that the legions of people who flock to Sears also will buy goods at other stores. By owning the shopping center, Sears can capture some of this value. In contrast, there is little, if any, benefit for most businesses to locate in the same building as IBM.

Fee Business

For developers, there is an additional reason to integrate vertically: to diversify into fee businesses that operate independently of the development cycle. The fundamental strategic problem faced by most developers is how to sustain their organizations through downturns in the development cycle. By its nature, real estate development is the most cyclical of all businesses. The conventional wisdom is that the development cycle results from sensitivity to macroeconomic conditions. But the real sources of the cycle are the durable nature of the product and the stochastic nature of the demand. Unfortunately for developers, buildings last for years. Unlike food or toothpaste, there is relatively little continuous replacement demand for new buildings. Instead, demand results from structural shifts in the economy, marginal changes in demographics or improvements in local economic conditions that give rise to new development opportunities. Developers must figure out how to cover their overhead during periods of scarce development opportunities when they are not earning development fees (if they are investment builders) or development profits (if they are merchant builders).

Vertical integration represents one approach to the cyclical problem. Brokerage and property management are two fee businesses that are closely linked to the development business yet operate independently of the development cycle. Demand for these services is proportional to the magnitude of the *stock* of existing buildings as distinct from the *flow* of new buildings created through development. Similarly, mortgage brokerage and tenant construction offer similar opportunities to diversify into related businesses that are less cyclical than development. Another approach to the cyclical problem is for a developer to strictly avoid any form of integration. If a developer contracts for virtually all services with third parties, he can keep overhead to a minimum and hunker down during lulls in the development cycle. So while vertical integration may be one strategy for dealing with cycles, it is by no means the only strategy.

Integration In Real Estate

In sum, there are a variety of reasons why real estate firms integrate at the fringes of their businesses. Investors integrate into development to gain access to product. Developers integrate into brokerage to gain knowledge of customers and their preferences. Owners integrate into property management to ensure management from an owner's perspective. Contractors integrate into development to earn a larger reward for the risks they are taking and to ensure a steady stream of work. Large retail developers integrate into retailing to improve their bargaining position relative to anchor tenants. Retailers integrate into development to capture the full value created through their leases. And everyone considers integration as a means of diversification.

While the above discussion explains why vertical integration occurs at the margins of different

segments of the real estate industry, it does not help us understand why fully integrated real estate companies have not proliferated in the United States as they have in other countries. The next section of this paper examines structural characteristics of the U.S. real estate industry that are likely to thwart large-scale vertical integration.

FIGURE 1:

The Real Estate Value Chain

Activity	Services
Land Assemblage	Brokerage, Financing
↓	
Horizontal Development	Legal, Planning, Construction
↓	
Vertical Development	Design, Construction, Financing
↓	
Leasing/Sales	Brokerage, Marketing
↓	
Asset Management	Property Management, Permanent Financing
↓	
Investment Asset	Investment Brokerage

Vertical Integration And Industry Structure

Value can be created in real estate in a variety of ways: through land assemblage, horizontal or vertical development, leasing or sales, asset management and investment. (see Figure 1) Land assemblage is the process of assembling adjacent sites to permit the development of a larger project; those who engage exclusively in this process are land speculators. Once a site has been assembled, the process of horizontal development occurs. This process includes obtaining permits and approvals and developing roads and the necessary infrastructure to support the development of buildings on the site. Those who engage only in this process are land developers who may sell their sites to end users or wholesale their sites as large parcels to developers. Vertical development is the process of actually developing buildings for occupancy. Once vertical development has been completed, leasing or sale of the buildings takes place and asset management begins.

The ways in which value can be added to real estate are supported by many services, including brokerage and financing; planning and construction; design, construction and financing; marketing; property management and permanent financing; and investment brokerage (Figure 1). A completely vertically integrated firm would be involved in all of the methods of adding value to real estate, and it would perform all of the necessary supporting services in-house. In contrast to Japan and some European countries, the United States has few such firms. There are a variety of reasons for this.

The Local Nature Of Services

Many of the services needed to operate a fully integrated development company in the United States can only be provided locally. Prior to the start of vertical development, it is local expertise that creates value in real estate; it is the knowledge of local buying opportunities, local planning laws, local politics, and local building trades and contractors. While an architect can design a building from a remote location and financing sources can be located virtually anywhere, lawyers (at least those responsible for the approval process), brokers and property managers typically must be located in close proximity to their projects. To be competitive, contractors also need to establish relationships with local subcontractors. Thus, if a real estate company operates in more than one U.S. market, it must recreate much of its organization in each part of the country where it is active. Every one of its regional offices must have its own construction company, its own brokerage operation, its own legal group and its own property management company.

The difficulty with this arrangement is that few U.S. companies operate on a large enough scale to sustain an integrated operation in every market. Rather, U.S. companies find it far more efficient to contract for services with third party providers in various locales. This explains why the only fully integrated (i.e, construction, development, brokerage and property management) real estate companies in the United States are regional companies such as Spaulding & Slye which operates only in New England and in Washington, D.C. The large national developers in the United States (Trammell Crow, Gerald Hines, Lincoln Properties, etc.) generally restrict their activities to development, marketing and, in some cases, property management. By way of contrast, Japanese real estate markets are smaller geographically and more homogeneous; therefore, it is easier for integrated real estate companies to operate throughout the country. Moreover, Japanese industry traditionally has operated in an integrated fashion or through interlocking ownerships and directorates.

In the United States, we can expect some foreign firms to be successful with a vertically integrated strategy in a few specific, homogeneous real estate markets. For example, Hasegawa Komuten is one of Japan's largest condominium developers. The company is very active in Honolulu where it caters largely to Japanese buyers. In Honolulu, the firm not only develops but constructs, markets and manages its properties. This strategy may be reasonable to follow in Honolulu or a few other well-defined markets, but it would be problematic if pursued simultaneously in many diverse markets throughout the United States. Unless a company developed a substantial number of buildings in each market, it

could not support a full construction company and brokerage operation in every city in which it was active.

The Compensation Problem

The second difficulty in organizing a fully integrated real estate company in the United States is managerial in nature. In contrast to other parts of the world, the United States has traditionally compensated people who perform management, brokerage and development services very differently. Managers, be they property managers or general managers, are usually paid a straight salary and a bonus or a share in profits based upon the performance of the company. Brokers are typically compensated through commissions. And development personnel often receive equity interests in the projects they develop in addition to a salary. The firm that attempts to bring brokerage, management and development under one roof runs the risk of creating friction over compensation issues.

For example, brokers, who often receive large commissions as they lease the space immediately after completion of a project, would be paid in excess of the salaries earned by the most senior managers. Inevitably, this difference in compensation would breed resentment among those who were responsible for developing a project and who typically would wait years until the project was sold before they could recognize the benefits of equity participation. And in the interim, it would be the managers of the company who would create the most value in the project through careful management of the investment asset.

While this compensation problem is not insurmountable, it may help to explain why few fully integrated real estate firms exist in the United States. Furthermore, the difficulty of providing competitive compensation for brokerage and development personnel without upsetting the salary structure also may explain why relatively few large U.S. institutions have managed to integrate directly into development. Instead, large U.S. companies find it easier to participate in development through joint ventures or passive investments in independent development companies.

The recent experiences of Hooker and Campeau illustrate the investment and managerial risks confronting foreign real estate firms that attempt to integrate beyond their core businesses in the United States. Both firms acquired major department store chains as part of a larger integration strategy. In doing so, they attempted to manage a highly specialized business—retailing—in which the firms lacked special expertise. Today, both companies are on the brink of bankruptcy. The experience of Hooker and Campeau suggests that the potential gains from integration are sometimes more easily identified in theory than they are realized in actual practice.

Macroeconomic Risk

The third obstacle to large-scale vertical integration in real estate is that it tends to expose a firm to more macroeconomic risk. Although the time it takes to bring products to the marketplace is shortening for other industries because of technical and managerial advances, the time necessary to complete the value chain for real estate is lengthening. It takes longer to develop a project today in the United States than it did 10 or 20 years ago. There are a variety of reasons for this: the approval process is longer, financing is more complicated, and buildings themselves are more sophisticated and often take longer to construct. Because of the protracted value chain, a large firm that takes a project from raw land all the way through to completion of a development as an investment asset is more exposed to macroeconomic downturns than a small firm that times its entry and exit into the market. As the value chain continues to lengthen, integrating may be a less attractive strategy for dealing with the cyclical nature of real estate than contracting out all possible services to third parties and hunkering down during downturns in the development cycle.

The Consequences Of Foreign Investment

Notwithstanding their widely admired management skills, even the Japanese have not figured out how to overcome the structural obstacles that confront companies seeking to vertically integrate in the U.S. real estate industry. Foreign firms active in U.S. markets face exactly the same problems (and opportunities) as U.S. firms. Moreover, the longer foreign investors are present in the United States, the more they tend to behave like domestic investors. So, over time, we would expect to see a variety of strategies being pursued by foreign real estate interests that are likely to mirror the strategies that are being pursued by domestic real estate companies. Some of these strategies will include integration at the margins of core businesses. Integration on a scale comparable to what is experienced in other countries, however, is unlikely.

Structurally, there are likely to be two major consequences of large-scale foreign ownership of U.S. buildings. First, there will be more foreign competition in related businesses. As long as there are foreign buyers, there will be companies catering to provide services to them. Some of these service providers will themselves be foreign companies that share a common language and culture with their customers. There will be foreign-owned brokerage companies, foreign-owned property management companies, foreign-owned construction companies, foreign-owned design firms, foreign-owned banks and foreign-owned development companies. But there also will be domestic firms seeking to serve the same clientele, and foreign-owned firms will be competing with domestic firms for both foreign and domestic business. Some real estate-related businesses such as construction lending may even come to be dominated by foreign institutions. But it is highly unlikely that massively integrated firms will emerge in the United States as they have in other countries.

Perhaps the more significant consequence of large-scale foreign ownership is that it will hasten the institutionalization of the real estate industry

in the United States. Foreign ownership is largely institutional ownership involving pension funds, insurance companies, sovereign governments and major corporations. The influx of foreign capital has coincided with an increase in the portion of assets allocated to real estate by domestic pension funds. As institutional money, both foreign and domestic, has flocked to real estate, yields on investment-grade assets have been bid down to levels below the long-term cost of debt. Furthermore, because of soft rental markets, the return on cost for new buildings in many markets is now below the long-term cost of capital. The result of this bidding up of prices and bidding down of yields is that developers can no longer afford to own the buildings they develop. As a result, they are developing buildings to sell to institutional buyers at capitalization rates below the return on cost.[5] This process reinforces the institutionalization of the real estate market, and at the same time, it forces developers to pursue a fee-based, merchant-build strategy.

In time, U.S. real estate markets may begin to look like European markets, with the bulk of the investment-grade building stock being in the hands of large institutions. These buildings will not sell as frequently as buildings sell in the United States today. Developers will be forced into alliances with institutional partners because it will be difficult to finance new projects without gaining access to large amounts of equity. The development industry will consolidate because smaller, under-capitalized developers will have a difficult time competing in this environment. But institutional ownership should introduce more stability to real estate markets, and it should bode well for individuals with asset management skills who are able to create value for long-term owners through astute management of real estate portfolios.

NOTES

1. See Bacow, L. "Understanding Foreign Investment in U.S. Real Estate," MIT Center for Real Estate Development Working Paper Number 12, November, 1987.
2. See Bacow, L. "The Internationalization of the U.S. Real Estate Industry," MIT Center for Real Estate Development Working Paper Number 16, November, 1988.
3. See Louargand, M. "Foreign Bank Participation in United States Mortgage Markets," MIT Center for Real Estate Development Working Paper, December, 1989.
4. Porter, M. *Competitive Strategy* (New York: The Free Press, 1980) pp. 302–9.
5. An example may help to illustrate this point. Suppose a developer builds a project for $10 million, and the project upon completion generates $950,000 per year in net operating income (i.e., income after expenses excluding debt service). If the long-term cost of debt is 10% and lenders require a debt service coverage ratio of 1.2 (i.e., to ensure that enough cash flow is available to service the debt, lenders will lend only up to the point where the net operating income exceeds the debt service by 20%), then only about $792,000 will be available to service the debt ($950,000 ÷ 1.2). Even if the developer can borrow on an interest-only basis, this project will support only $7.92 million in debt. If he must amortize the principal, he can borrow less. Thus, if the developer wishes to own the project as an investment, he must come up with over $2 million in equity to bridge the gap. On the other hand, an institutional investor looking to earn an 8.5% return on its money should be willing to spend around $11.15 million to acquire the same property ($950,000 ÷ .85). Given this choice, most developers opt to sell to the institutional buyer and look for the next project to build. A number of factors have brought about this set of events: declining development margins (the return on cost has been falling steadily in most markets due to declining real rents and a lengthening development process); the bidding up of prices and bidding down of yields by institutional buyers even in the face of falling income streams from properties; and the cost of debt relative to the return on cost.

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REAL ESTATE COUNSELING IN THE DEVELOPMENT PROCESS

More and more today's marketplace is requiring the Counselor's diverse and analytical skills for decision making.

John R. White, CRE

What Is Real Estate Counseling?

Real estate counseling is the business of analyzing specific real estate problems and needs for agreed fees, drawing conclusions, and making recommendations to a client. The nature of the consulting problem frequently calls for an objective, dispassionate, and professional solution, as in recommending whether to proceed with a total rehabilitation of a building. Another illustration is a study to help decide whether to develop, hold, or sell a specific site on which new zoning has been obtained and the price at which to offer it, if the sale decision is chosen. In these examples, the counselor is acting in a passive way on the client's behalf.

On other occasions, the real estate counselor may be engaged to act in an advocate's role, as in an arbitration of a real estate dispute. He may provide active services as a disposition counselor in the planned sale of a newly developed building. (For example, the author acted for Pan American World Airways as a consulting intermediary in the sale of the Pan Am Building to Metropolitan Life Insurance Company.)

A counselor may be an individual practitioner, a senior officer in a brokerage or investment company, or he may be with a company exclusively in the field of real estate consultation. Counselors' services are used by banks, insurance companies, pension funds, investment and development companies, individuals, and governmental agencies. Most counselors are skilled in virtually all property types, although there are many who specialize.

How Counselors Are Paid

Most counselors in the larger realty companies are paid on a salary basis and also receive an annual bonus for their production and ability to obtain new business. It has become a comparative rarity for a counselor to be paid by his company on a "piecework" basis, i. e., a certain percentage of the gross fee earned by the company on each account. On the other hand, counseling fees payable by the client to the individual counselor or company are usually, but not always, agreed to in advance. If the counselor is engaged to study the feasibility of site development, he will make the study for a flat, agreed amount, or may identify a range of fees, with the final amount dependent on hours, changes in the scope of services, or unusual circumstances.

Sometimes monthly or quarterly retainers are negotiated where the services are long-range or varied as to scope, or both. Where retainers are employed, there is generally some arrangement for additional compensation based on hours, performance, or the success of the development effort. If the

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advisory services are of a nontransactional nature, the adjustment for compensation over the retainer is usually on an hourly basis. However, where a sale, purchase, lease, or financing is arranged, an agreed incentive fee above the retainer amount is generally paid. Thus, on a very carefully defined basis, a counselor may be engaged for a nonrefundable fee, plus a contingency fee for successfully arranging a sale, purchase, financing, or large-scale lease. The total fee is partially contingent, i.e., dependent on the counselor effecting a transaction on satisfactory terms for the client.

Some have criticized this method of charging on the ground that it smacks of pure brokerage. This is simply not the case. First, brokerage implies an open agency arrangement in which brokers compete with one another to effect a sale. A counselor would never accept business on an open agency basis. If there is a similarity, it is with the exclusive agent, who acts on behalf of a client on a fiduciary basis. The counselor, also exclusively engaged, is nevertheless still distinguishable from the exclusive agent. The former receives a retainer or other agreed fee in advance of services, and all marketing and promotional costs are usually borne by the client. Counselors are regarded as team players. They have a more professional philosophy in conducting their business, first because they tend to be salaried and share annual bonuses. Second, counselors are schooled by the American Society of Real Estate Counselors in offering more analytical, detached, and objective services.

The market realities also demand that counselors receive some type of success fee in a transaction. Otherwise, it would not be possible to attract the high-quality, educated, professionally motivated person to the counselor ranks. The professional mindset remains, however, because of the counselors' dedication to quality advisory services.

Can The Counselor Be Considered A Professional?
To what extent can a counselor consider himself to be a real estate professional rather than merely a businessman? At the moment, counselors lack professional standing because the group that represents them, The American Society of Real Estate Counselors, is a nonqualifying society that issues invitations for membership but imposes no formal educational or examination requirements. Its invitational standards are nevertheless very high. A person is invited only after extensive interviews, reference checks, and documentation concerning the provision of past counseling services for agreed fees, negotiated in advance of performing services.

The society has both a Code of Professional Ethics and Standards of Professional Practice. The society is insistent on the counselor establishing his contractual relationship and method of compensation before taking any overt action on the client's behalf. It also vigorously opposes conflicts of interest and compels its members to disclose to all parties such a possibility and to obtain their consent prior to providing services. The society constantly seeks to attract, then qualify, and finally invite those who spend a portion or all of their time on counseling assignments.

At this stage of its history, the society appears content to be considered a business organization with high professional motivations. It shows no disposition to align itself with appraisers, agents, or managers. It considers itself an elite organization representing the very best in real estate. What role then can the counselor play in assisting a principal in a development capacity? Where do counselors fit into the various stages of the development process?

Defining The Development Process

Real estate development is the process of purchasing, or leasing land for a long term, for the immediate or ultimate purpose of constructing an appropriate building improvement on the site, subject always to the local zoning ordinance. A developer is generally the principal, or one of a number of principals, commonly referred to as investors, who has or have invested capital in the form of equity and debt to cover the estimated total development costs.

The principals may designate one of their group to serve the critical role as coordinator of the development. Carrying out a development plan is an involved, detailed, multiphase activity. The control of the sequential process is essential if the finished product is to be completed within the construction budget. The elimination of waste, duplication, and inadequate planning requires an experienced and alert person.

The principal acting as developer does not necessarily accomplish every step in the construction process. He frequently subcontracts many of these steps to realtors, construction contractors, construction managers, and others. However, the total role of the real estate counselor in the development process is presented here to provide insights into his ability to assist development planning and effectuation. The experienced real estate counselor can even assume entirely the role of the managing principal. Alternatively, he can serve in any number of capacities.

EXAMPLE: The author served in the place of his principal, Commercial Union Assurance Company, in the construction and development of One Beacon Street, Boston, Massachusetts, an office tower and underground garage of about 1.2 million square feet.

Acting without discretionary authority, i.e., with his actions always subject to approval by the principal, the author and an associate assembled nine parcels of land comprising an area of some 60,000 square feet, engaged the architect, the construction company and construction manager, the rental and managing agent, and the public relations counsel, and coordinated the entire development process to a successful conclusion very close to budget.

In this case, the author was acting as a real estate counselor for agreed monthly fees during the entire process of site selection, assemblage, planning, lease marketing, and field construction. He had no financial investment in the development nor was he offered any by his client. He received no bonus or award for being substantially within budget. However, he was amply compensated in relation to the development cost and considered that he had acted as a fiduciary, albeit without discretionary authority. The counselor was not qualified in actual construction, but his advice to the client to engage Turner Construction Company as general contractor and construction manager was heeded. This was a significant appointment in terms of the overall success of the project because of Turner's recognized capacity to complete institutional construction on budget in a timely manner.

The counselor's major contributions were (1) a basic understanding of the construction and development process; (2) selection of the site and solution of any assemblage problems; (3) marketing of the space; and (4) subjecting the investment (which was planned for 50 percent owner occupancy) to the discipline of an investment analysis that insisted on the probable net operating income (including the rental value of the owner's space) bearing a reasonable relationship to development cost. In other words, the counselor was determined, within market limitations, that the owner would receive an adequate return on his equity investment. A considerable amount of the construction cost was reduced by use of alternate materials or systems, by elimination of certain items as extravagances; or by the transfer of certain "tenant installation" costs to a tenant cost account, so that they would not be a burden assigned to the real estate development costs.

Thus, it may be seen that the real estate counselor may indeed have the capability of assuming responsibility for the A to Z process of real estate development.

Counselor's Role In Site Selection And Assemblage

The real estate counselor is uniquely qualified by a background in all phases of real estate. One of the most vexatious problems developers face is the need to assemble quietly, without the affected owners or lessees knowing of the developer's interest in acquiring the overall tract. If the developer is completely candid, he runs the risk of escalating his land costs beyond what can reasonably be afforded.

The urban developer has the most difficult task. Commercial tenants may have long leases that do not include possession on sale or demolition clauses. Frequently, they must be bought out at high prices, which, when added to the underlying land cost, increases development cost. It is obvious that careful planning of the land acquisition must be made, even if it means engaging others to assist in the acquisition process. Concealing the purchaser's identity in order to effect an assemblage is now frowned on by some courts, especially in New York where one cannot deny representing an assemblage buyer. New York in effect compels the assemblor or his agents, including consultants, to reply to a direct question about representation by responding, "no comment."

Both the counselor and the broker are well qualified to assemble plots. The counselor is frequently engaged by the developer as the manager of the assemblage process. The counselor, by agreement with his developer-client, may engage real estate brokers, attorneys, accountants, or others to assist him in the purchase of the various individual plots that will ultimately compose the total buildable plot. The counselor may participate directly himself in the negotiation for purchase of individual plots, or he may delegate this to others while limiting his own role to conceiving strategy, engaging others to carry out the tasks, and supervising the entire procedure. Discretionary authority on prices to be paid typically remains with the developer. In special instances, usually involving institutional or industrial corporation requirements, the counselor may be granted discretionary authority.

The counselor can be extraordinarily helpful to a developer in organizing and planning an assemblage. If he is empowered to engage others, the counselor can be especially creative in concealing the developer's identity to the extent the laws and the courts allow. Even if the proposed site is an adequately sized plot for development, the developer is well-advised to consider the engagement of a counselor to act as a screen between the client-developer and the site owner. Further, the counselor may have special skills in persuading the seller to take back a subordinated or even partially subordinated second mortgage loan. The counselor may also be able to convince the seller to delay closing until suitable development financing is arranged or on some other contingency. It may even be possible to negotiate a purchase option that would give the counselor's client the choice of purchasing the property at an agreed price at a future time or of "walking away" from the purchase simply by failing to exercise the option.

Planning And Zoning And The Counselor

There is no more emotionally charged issue today than the planning and zoning of land use. It has reached the frantic stage, where critical decisions on land use that should be calmly and professionally considered by interested parties are being subjected to local referenda for essentially uninformed or at least emotionally derived reasons.

No responsible developer or real estate counselor today is opposed to reasonable land use restrictions. Everyone recognizes the need to restrain development until a community or a county can first provide the infrastructure essential to development, such as roads, water, and sewers. Everyone is also deeply committed to maintenance of the natural environment, especially but not limited to coastal areas where marshes, estuaries, and rivers offer unique

breeding grounds for primary forms of life and provide sanctuaries for birds and animals.

On the other hand, the pressure of population growth is ever on us. How can this growth be accommodated without ravaging the countryside and without yielding to the slow growth or no growth extremists? The developer becomes somewhat a victim of these opposing forces. It is perplexing and difficult for him to confront the polemicists in a calm and reasoned manner. The developer is really troubled by the ultimate absurdity of a diversion of industrial and population growth to states that take a kindlier view of land use problems. The developers would like to develop where they are best known and their skills more widely recognized. How can this be accomplished?

The real estate counselor can provide a calming influence on a potentially explosive situation by acting on behalf of a client developer in planning and zoning matters. The presentation on a land use plan to a local planning board, especially when the plan requires certain zoning modifications, can sometimes be effectively accomplished jointly by a developer and a real estate consultant, together with all the other specialists. Since the counselor is not a principal, he may convey a sense of professional detachment and may make a positive impression on the planning board. The presumption is the counselor would not subscribe to the plan if he did not believe it met the highest standards of land use.

The Real Estate Counselor's Role In New Building Planning

The counselor by education and training is adept at assisting a developer in deciding the best use of a site, i.e., that use estimated to produce the highest possible residual net income to the land, subject always to zoning limitations. The counselor may be employed even prior to the selection of an architect at a time when the development is in an embryonic stage. In this instance, the counselor works mainly from a knowledge of the bulk, floor area, and height that the zoning permits, in addition to the parking requirements.

The exercise is by no means a simple task. The developer and his counselor must consider the quality level of construction, the mechanical and electrical systems, and the general layout and design necessary to achieve the highest rent levels consistent with the commercial district or neighborhood. No doubt the developer will ask the counselor to estimate the anticipated building revenues, real estate taxes, and operating expenses so that some idea of the probable net operating income may be gained. The profit potential can then be determined by subtracting the development costs from the capitalized value of the net operating income.

Frequently, the developer engages a counselor to provide some preliminary ideas about project feasibility. He may not have any immediate plans to proceed with development. These early studies may also convince the developer that he will need to obtain zoning changes in order to be better assured of a successful project and in order to obtain a higher land price if he sells the land or develops it at a later date.

When the developer engages an architect, it is a reasonable assumption that construction is at least impending, if not imminent. The architect, frequently working with the assistance of a counselor, will prepare design sketches with elevation drawings and floor layouts. The architect may proceed as far as design development, in which the basic mechanical, electrical, and other systems are incorporated in the drawings. Thus, the design development stage provides the developer with a detailed set of drawings that, while far from working drawings, can serve as a basis for estimating construction and development costs and supply more accurate and comprehensive insights about project feasibility. The real estate counselor can provide valuable advice and counsel to the architect by interpreting the tastes and preferences of the renting public about design features, equipment, and exterior appearance. Thus, a coordinated effort by the developer, architect, and counselor can produce better development results.

Marketability And Feasibility Studies

The developer typically relies on mortgage financing to cover a major portion of development costs. In these cases, the mortgagee may demand at the developer's expense a marketability or feasibility study in addition to the conventional appraisal. These analysts and counselors are frequently named by the mortgagee but paid for by the mortgagor. On other occasions, the developer will submit a marketability or feasibility study by an acknowledged person or company with outstanding credentials as part of his mortgage application.

Many financiers now consider the marketability and feasibility study as more important than the appraised value itself. This is especially true in an oversupplied market or a market characterized by demand retrenchment and recession. The developer then must rely to a far greater extent on outside consultative help; the lender will regard the developer's own estimates as too self-serving to be truly credible. The counselor is in an unusual position to fill this void.

The formal marketability study analyzes the economic base of a metropolitan area and the neighborhood in which the project is to be located. It examines all the real estate market factors affecting the existing inventory and its characteristics, as well as current and anticipated supply and demand factors. It then seeks to estimate the probable rent or sale levels and the absorptive capacity of the real estate, i.e., the time required to achieve normal rent or sales levels. Essentially, the real estate counselor must be able to estimate that portion of the total market demand within the market area that may be ascribed to the project. This is a difficult estimate at best. There are no mathematically precise ways

in which the relative marketability can be calculated. Contemporary real estate counselors are developing mathematical correlations derived from economic base factors such as disposable personal income, employment and job growth, personal consumption expenditures, and others, and drawing relationships to real estate demand based on the current real estate market. These methods, however, are still considered experimental and not necessarily conclusive. The judgment and knowledge of the real estate counselor become all important.

The feasibility study is a logical extension of the marketability study. It is concerned not only with the revenue levels and the timing of the receipt of these revenues; it also establishes the relationship between projected net income and development cost. Stated differently, it provides both the developer and the mortgagee with a professional estimate of the probable return on investment after detailed consideration of revenues, operating expenses, real estate taxes, and financing charges.

> Methodology is changing somewhat. Analysts now place less reliance on the so-called land residual capitalization method in deciding feasibility. They are beginning to prefer the discounted, internal, after-tax rate-of-return technique because it establishes the long-term return on the estimated investment cost rather than relying on the difference between cost and value as the major measure of success. New computer software programs have been devised that, at minimal cost, allow analysts to make numerous forecasts each based on small changes in estimated variables and projections. Sensitivity analysis techniques can be used that greatly enhance the valuation and investment analysis results. For example, numerous analyses may be made, each assuming different data for rent levels over the absorption period, or each assuming absorption periods of different length.[1]

The aspect of the new building planning process vulnerable to the greatest margin of error is the estimation of the absorption period for a particular project. Analysts and developers alike tend to be too optimistic about the share of the total market allocable to the planned property. A professional sense of detachment is extremely important. The counselor can temper the developer's natural exuberance and provide the project credibility that the lender or buyer now demands. This advance in the level of professional assistance provided by the counselor gives a lender or equity partner greater confidence about the overall chances of project profitability. It is a welcome relief from the "back of the envelope" approach used by many developers in years past.

Selecting The Architect And Engineers

The typical developer will reserve for himself the task of selecting the correct architect for a planned project. Rarely is a real estate counselor engaged to assist in architectural or engineering selection for a speculatively built project, or even one in which significant preleasing has already occurred. However, there is one outstanding exception to this general practice.

In the instance of planned owner occupancy of buildings where the owner is not in the real estate development business and lacks the staff to accomplish the corporation's real estate purposes, the nonprofit or for-profit corporation may engage a real estate counselor to administer phases of or even the entire project.

EXAMPLE: Landauer Associates has acted as an overall counselor for development projects as diverse as the Commercial Union Life Assurance Building at One Beacon Street in Boston and the famed St Peter's Church in the Citicorp complex in midtown Manhattan.

In the St. Peter's development, the real estate counselor participated actively in the architectural selection process and jointly decided with Citicorp, with the concurrence of the church board, on Hugh Stubbins & Associates of Boston. This involved many reviews of and meetings with outstanding architects before a choice was finally made. The real estate counselor also initiated a search for the best architect to plan the Commercial Union building in Boston. After many meetings between executives of Commercial Union and Landauer, the firm of Skidmore, Owings & Merrill was finally selected.

> The Consultant has a critical interest in the actual design and supervision experience of both the architect and his subcontractor specialists. The developer should not only interview architects, he should have them submit a list of their designs, together with locations, descriptive data and graphics of their work. He must then visit a sufficient number of completed buildings to gain insights into a preferred architect's design ability. The depth of an architect's staff is another significant consideration. Particular attention must be paid to the architect's capacity to offer working drawings that are errorless and complete, leaving little to the general contractor's imagination.
>
> Once the architect is chosen, he must start the process of evolving a design that not only reflects the client's needs but also follows the market and investment recommendations of the marketability and feasibility consultants. For example, if the marketability and feasibility analyses resulted in recommendations for a lower height building with larger floor areas as most marketable, the architect cannot attempt to persuade the developer to erect a tall tower with small floors. Similarly, the interior finishes and mechanical systems must be commensurate with the client's needs and desires as well as the dictates of the feasibility study.
>
> From the teamwork of various professionals, there evolves a design concept that satisfies the developer, architect, engineer and real estate consultant. Every possible factor must be thought of and considered for its influence on the final design. The schematics that the architect finally creates must be sufficiently detailed to enable the costing process to begin.[2]

Few architectural firms are vertically integrated to the extent of having structural and mechanical engineering capacity on their staff. Most architects prefer to engage the necessary structural, mechanical, and electrical engineering help with the developer or owner's consent. Experience has clearly demonstrated that the specialized engineering firms perform best and have more generalized access to new methods and procedures and know ways to economize on cost. The real estate consultant must rely on the advice of the architect for this specialized professional assistance and not attempt to make such engineering selections by himself.

Selecting The General Contractor

Perhaps the most critical need that first confronts

the developer or owner is the selection of the general contractor. When a real estate consulting company is also involved in this choice, the counselor will want to assure himself of the basic experience and integrity of the contractor in order to avoid cost overruns, costly delay, or equipment mistakes. A real estate counselor should not presume to make this decision unless he has one or more senior associates with direct construction experience and, preferably, personnel on the staff with engineering and construction education and licenses.

It is extremely important that the real estate consulting company not undertake an assignment for which it is not qualified. Since the construction process involves countless details and interactions and customary practices differ from region to region, the consultant must either have staff expertise or engage specialists with the owner's knowledge and consent. Real estate counselors must be ever conscious that they are acting in a fiduciary capacity. Otherwise, they subject themselves to the possibility of liability actions and place their net worth in jeopardy. The cardinal rule is not to presume nonexistent qualifications. Knowing the methods of general contractors is especially important. Consider the many questions and problems noted in the author's description of the selection process in an earlier article on the subject.

> Until recently, general contractors, in addition to dealing with the various subcontractors, have performed one or more of the trades themselves. The general contracting organization might itself have undertaken excavation, foundation and concrete work, or carpentry, plastering, painting, and plumbing, or any combination of these. This type of general contractor has been largely superseded by a broker type (also called a construction manager) that performs no trade work itself. Instead, it estimates costs by inviting all the trades to submit bids for their respective specialties. It maintains a staff of cost estimators, purchasing agents and construction superintendents, in addition to necessary support personnel. This relative handful of personnel exerts profound influence on the efficiency of the construction process.
>
> Traditionally, it has been the practice of developers to invite competitive bids from at least three, sometimes more, general contractors, based on a complete set of working drawings. This is still the practice of government bodies and many large industrial corporations. Competitive bidding can also work well on smaller projects. However, in major U.S. cities, especially New York, Chicago and Los Angeles, the bidding system has yielded to a new procedure. Now the developer/investor selects a construction manager carefully and requests that it prepare cost estimates based on design development drawings. Developer and contractor negotiate a contract based on the contractor's estimates. These negotiated contracts are especially effective in labor-short or high-salary markets where the premium is placed on obtaining the most skilled labor. The proficient general contractor knows all the trades and can bargain effectively with subcontractors. When choosing the general contractor, the developer relies heavily on the contracting firm's record of performance, and he may reward a past record of excellence even if he must pay a higher price.[3]

The development process is made more manageable for the real estate consultant when the client decides to adopt the negotiated bid method. The only danger is the possibility of cost overruns resulting mainly from changes in design or materials that were made subsequent to the preparation of the outline specifications. This rarely happens when an experienced general contractor acts as a construction manager.

> The negotiated contract makes good sense for large commercial developments in the major cities. Under this arrangement, the general contractor is a member of the development team. He is an ally rather than an adversary. He will work hard to bring in prices from all the trades that are as low as feasible.
>
> Another important reason for the popularity of the negotiated contract is that it permits the involvement of the general contractor in the architectural and engineering planning. The organization's input on materials, design, equipment and even layout can be invaluable. The experienced general contractor is conversant with the latest innovations in energy conservation, in improved heating and air conditioning design and equipment, in better lavatory equipment and in a host of other areas. The general contractor can help to restrain the architect's tendency to overdesign and overspecify. His expertise in material selection is especially useful. Last, his ability to purchase by negotiations with the subcontractors such critical items as steel, elevators, and HVAC plays a pivotal role in keeping costs at the lowest possible levels.[4]

The Counselor's Role In Space Marketing

The term "marketing" for real estate development purposes is a more all-inclusive concept that embraces yield analysis, leasing, promotion, public relations, and advertising. The entire gamut of marketing must be covered. This by no means minimizes the critical role of space leasing performed by the brokers. Obviously, the direct, personal leasing effort is the most important and most effective way of achieving results. The agent or counselor must also plan for, and expect, substantial support from a public relations firm, from outstanding marketing materials, and from a carefully planned advertising program.

Traditionally, the responsibility for space marketing is contracted by the developer to a local brokerage acting as an exclusive leasing agent. Commissions are usually paid in one of two ways:

- The agent is authorized to split one full commission by agreement on the dollar amount with the outside broker who was the procuring cause of the lease. Of course, the agent would earn the full commission if he were successful in producing a tenant or tenants. The brokerage is expected to solicit tenants directly and should not depend solely on outside brokers.
- The agent is authorized to offer a full commission to an outside broker who is the procuring cause of a lease. In this instance, the agent would receive an override commission that could vary between .125 percent and .5 percent of the full commission.

Where an exclusive agent is named, the developer usually reserves the right to designate the public relations and advertising agencies.

In recent years, counselors have also begun to serve as exclusive marketing counselors for developers on a modified basis. The principal difference between the agent and the counselor is that the counselor generally does not do any direct leasing solicitation himself. Rather, the counselor manages

the entire marketing effort for the developer and is empowered to engage brokers on a nonexclusive basis with the promise of a full commission at rates then prevailing in the market. In a sense, the counselor serves as the marketing representative for the developer. He can also be very effective in helping the brokers close lease transactions.

The Counselor is usually compensated by monthly retainer, with incentive fees based on the performance of the brokers the counselor has engaged. It is not good marketing practice for a counselor to invade a broker's commission. Instead, the counselor privately negotiates his own fee structure, and the various brokers are not privy to the arrangement. The brokers deal with the counselor as if he were a principal.

Why would a developer or owner/occupant engage a counselor rather than an exclusive agent to rent a building? The primary reason is that the developer does not want to single out any one agent in the market area because of conflicts of interest the agents have, but wishes to deal equally with all. Another reason exists when the counselor has served previously in the development process and the owner wants to maintain the relationship. A further reason is the perception that the counselor provides an overall more carefully planned marketing campaign in which he recommends the engagement of the public relations and advertising agencies that thereafter report to the counselor in a coordinated manner. Finally, the counselor may be better equipped to negotiate national or international leasing transactions because he may have created a more widespread geographical practice than the broker, who generally practices within his own city or metropolitan area.

The exclusive marketing counselor is an important member of the development team. His leasing skills and knowledge of tenant prospects are critical to the project's success. Most developers select an agency or consulting firm to be responsible for rentals, although some developers believe in direct employment of renting personnel. Developers considering agencies or consulting companies find it easy to identify those with a proven record of success. It is also easy to discover which companies have the depth of staff that is essential to success. All too frequently, the powerful personality of the agency head is not sufficiently backed up by a proficient staff. Thus, the wise developer interviews all those who will be involved in the rental effort. Another factor that the developer must consider when rating candidates for lease marketing is the number of competitive buildings that an agency may be simultaneously renting. Problems of overextention of staff and conflicts of interest must be avoided. It is sometimes rewarding to select a younger or lesser known counselor who will exert an extra effort and has no conflicts. However, such a firm is likely to have fewer high-level tenant contacts than an experienced agency. The choice is never an easy one.

Since commission rates are not regulated, they must be negotiated between developer and counselor. Obviously, the relative size, experience, and market positions of the parties will affect their negotiating clout. It is good procedure to engage the marketing counselor before schematic design starts. It can then join the general contractor, the developer, the engineer, and the architect in working on the best possible design for the office floors. The counselor can also aid the developer in establishing the rent schedule.

It is the counselor's responsibility to plan the total marketing campaign. This includes the constant monitoring of investment return as leases are made, the preparation of a brochure, compilation and dissemination of mailing lists, devising of an advertising budget, and planning of a promotional and publicity campaign. The counselor and the developer must agree on the sales tactics to be employed in the leasing effort. The counselor also assists the developer and his attorney in formulating the work letter, i.e., the document setting forth the standard finishes to be provided for a commercial tenant's space. He is instrumental as well in recommending the business provisions of the lease.

Conclusion

There is a distinct, ever-growing trend in real estate services toward a more professional approach in providing for the needs of the client. Only recently, the head of a national real estate agency privately stated that the agency business was moving toward the counselor's methods. Surely, the market place is witnessing more extensive study and analysis, better-arrayed documentation, more precise approaches, and an improved understanding of market phenomena. The counselor is in the forefront of this trend. Their professional mind-set, the depth and diversity of their staff, or their capacity to attract skilled subcontractors, and the very nature of the contractual relationship with the client all lead to a better coordinated result.

Developers, industrial corporations, nonprofit institutions, and co-venture financiers can profit from the special skills that counselors can provide in the various stages of the development process. Those companies that have no real estate or development expertise in their primary operations can especially benefit from the engagement of an experienced, skilled, and educated realtor who provides counseling services for agreed fees. Yes indeed, the counselor can build buildings. The counselor has proven his ability in this respect. The real estate investment also gains because clients now have an additional means of attaining their objective of developing real estate for investment or occupancy through the services of the real estate counselor.

NOTES

1. *White, "How to Plan and Build a Major Office Building," Real Est. Rev., Spring 1980.*
2. *Ibid*
3. *Ibid*
4. *Ibid*

REAL ESTATE IN 3-D: SEE IT NOW!

By dividing real estate equity investments into three dimensions—product type, geographic location and life cycle stage—meaningful performance comparisons may be made.

by Joseph L. Pagliari, Jr.

The author would like to thank Richard Garrigan, CRE, Ph.D., for his suggestions and insights in the preparation of this article.

The increasing institutional commitment to real estate equity investments has been widely heralded. But in a strange derivative of Mark Twain's remark about his rumored death, this commitment has been greatly exaggerated. No, not exaggerated in monetary terms—the flow of investment funds has been huge—but exaggerated in the sense of allocation. The institutional commitment essentially has been an allocation to "core properties"—investment-grade office, retail and industrial properties located in major metropolitan markets.

Necessity Is The Mother Of Allocation

Initially, much of the institutional commitment to real estate equity investments resulted from the disappointing returns realized in institutional stock and bond portfolios. In order to improve the overall portfolio performance, fund managers turned to real estate. This shift seemed to be spurred not by real estate's supposed portfolio-enhancing capabilities, (i.e., high rates of return, low volatility, low to negative correlation with other financial assets and a rate of return indexed to inflation) but by the poor performance of the stock and bond markets. Or had the performance of the stock and bond markets remained strong, the institutional commitment to real estate might have been less.

The importance of this observation is that on a micro basis the process is repeating itself again. This time, the stock and bond markets are being replaced with "investment-grade" office, retail and industrial properties. As prices for these properties continually bid upwards, the realized performance will continue to deteriorate. The answer lies in de-emphasizing these assets and branching into other property types (e.g., apartments) and other classes of property (e.g., Class B and C buildings). However, this redirected portfolio emphasis needs to be done with the specialized market knowledge which enables superior investment performance to be achieved.

Meet The Averages

There are two problems with this heretofore narrow view. First, continued investment in these "trophy" properties (and the exclusion of properties of other types and quality and in other locations) accentuates a two-tiered pricing structure: the trophy properties trade at substantially lower yields, so the premium for these so-called investment-grade properties becomes ever more difficult to justify. Second, this view tends to foster the notion that real estate investment organizations (such as the pension fund advisors, partnership sponsors, etc.) are adept at creating value across all (or, at least, most) strata

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of real properties when, in fact, this is not universally true. For example, a strong sponsor of office buildings located in the Northeast is not necessarily equally skilled at sponsoring shopping centers located in the Southwest.

This narrow view of real estate equity investment creates the impression that real estate is a homogeneous asset class. Accepting this impression as fact is fine if you want your real estate investment performance to mirror the performance averages generated by other institutional real estate investors. (There is precious little solace in knowing that your performance has matched that of your brethren when the achieved yield is substantially lower than expected or is even a negative return.) However, if you want to achieve superior performance (both in a relative and an absolute sense), it is critical to appreciate that real estate is a very heterogeneous asset class.

Real Estate's Heterogeneity

Essentially, income-producing real estate equity investments can be viewed as having three dimensions classified by product type, geographic location and stage in the product life cycle. Product type, or the nature of a property, and geographic location are obvious classifications of real estate equity investments. Although less obvious than the first two parameters, life cycle also is critical in distinguishing the primary attributes of a real estate equity investment. The life cycle dimension is based on the notion that improvements built upon the land have a longevity that is similar to, albeit typically substantially longer than, the longevities of other tangible products. Real estate goes through a start-up phase, which is the construction or development phase. Once a building is constructed and fully leased, the real estate enters the stabilized phase, and, if well designed and located, it will remain in this phase for many years. Like any other tangible product, real estate is subject to obsolescence and deterioration. If the location of a property is still attractive and the structural integrity of the building is still essentially sound, then the property will enter the rehabilitation phase. When rehabilitation overcomes obsolescence and deterioration, the property returns to the stabilization phase. This life cycle process is shown in Figure 1.

The Three Dimensions Of Real Estate Equity Investments

Figure 2, while highlighting key attributes, also oversimplifies the three dimensions of real estate equity investments. Consider the following:

Product Type. The listing of the five major property groups in Figure 2 (office, retail, apartment, industrial, other) could be expanded to include other income-producing real estate types: nursing homes/congregate care facilities, hotels and motels, etc. In addition, each of the major property types could be expanded to reflect the variations within categories. For example, industrial facilities could be further classified in order to delineate incubator space, R&D facilities, ceiling height, square footage, etc.; retail facilities could be further classified in order to delineate regional malls, neighborhood malls, strip centers, etc.

Geographic Location. The listing of the four major geographical areas in the figure (East, West, North, South) is an oversimplification. Not only could the number of geographical areas be expanded greatly, but delineations could be made to distinguish urban vs. suburban. For example, urban Detroit and suburban Detroit often exhibit very different supply and demand patterns. Additionally, even these categories could be further delineated by submarket: consider the difference between Manhattan's Wall Street district and its midtown district.

Life Cycle. Figure 2 also oversimplifies the realities of the real estate life cycle. For example, there are different degrees of rehabilitation: light (or "cosmetic") versus heavy (or "gut") rehab.

Notwithstanding the refinements that can be made to these axes, the three-dimensional depiction of equity investments in Figure 2 establishes a framework for developing a better appreciation of the heterogeneity of real estate. Each cell, or block, that comprises the three-dimensional depiction represents a unique set of risks, rewards and market knowledge. An appreciation of the differences in the cells will help lead to better investment performance.

Risk, Reward And Market Knowledge

Market knowledge is the key to assessing the risks and rewards of a potential real estate equity investment and achieving superior investment performance. Market knowledge enables the real estate equity investor to more accurately assess the risks and rewards of a particular investment. Market

FIGURE 1

Real Estate Life Cycle Phases

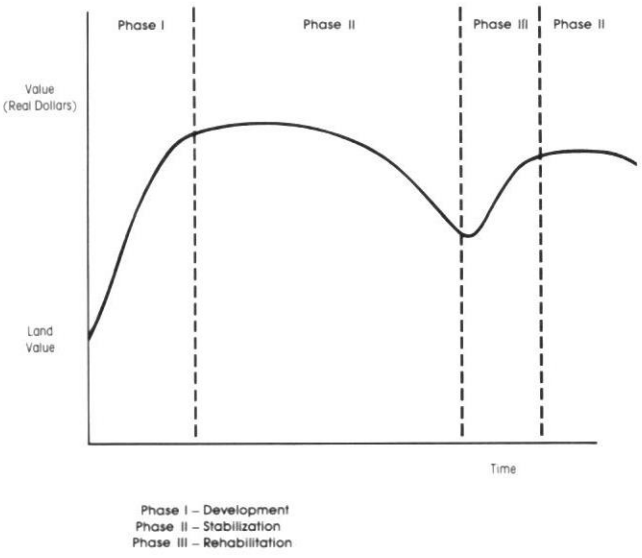
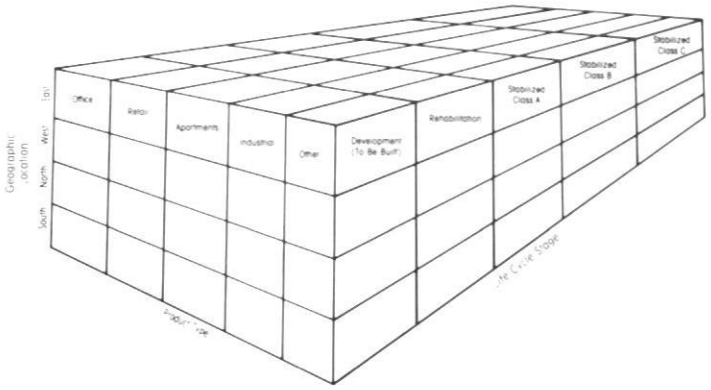


FIGURE 2

Real Estate in 3-D



knowledge extends beyond the oft-quoted macro vacancy rates; it encompasses an intimate familiarity with the product and the submarket in which the product operates. Less obviously, market knowledge extends to which organization is most skilled at maximizing value for a particular "cell." These factors vary widely by cell.

To illustrate, let's examine some aspects of property type, geographic location and real estate life cycle for an office building of 200,000 square feet and for an apartment building of 400 units, both of which have roughly the same market value.

Property Type. Consider the leasing activity as just one element of a successful property and further consider the different activities involved when comparing and contrasting the leasing activity for office buildings versus that of apartment buildings. Typically, the turnover ratio (i.e., the percentage of square feet, or residents in the case of an apartment building, which is being vacated upon lease expiration in a 12-month period) for stabilized properties might be 15% for the office building and 50% for the apartment building. The leasing staff for each building therefore would have to write six office and 200 apartment leases each year (Table 1).

Obviously, there are tremendous operational differences associated with writing six versus 200 leases per year. And, in fact, the manner of leasing is very different for the two property types. Whereas leasing office space tends to be a prolonged exercise that heavily emphasizes financial and space planning considerations, renting apartment units tends to be an abbreviated exercise that heavily emphasizes ephemeral considerations. Simply put, the former is more of a financial negotiation whereas the latter is more of a selling process. In almost every respect, the skills, techniques and circumstances of leasing are opposed. Consider just a few aspects: the use of outside brokers and print advertising; the sophistication of the clientele, the leasing agents and the lease negotiation process; space planning considerations; tenant buildouts; and the individualization versus standardization of the leasing process.

TABLE 1

Total Number of Yearly Leases Required for An Office vs. An Apartment Building

	Office	Apartment
Size of building	200,000 sq ft.	400 units
Turnover ratio	×15 %	×50 %
Vacated space	30,000 sq.ft.	200 units
Average tenant size	÷5,000 sq.ft./tenant	÷1 unit/tenant
Leases to Write	6 leases	200 Leases

Geographic Location. If we explore the dimension of geographic location as it relates to, for example, apartment buildings, we will see there is wide dispersion in the turnover ratio among locations. Our hypothetical example uses a turnover ratio of 50%, which is a very rough benchmark of the national average. However, in rent-controlled New York City, the ratio is typically 5% to 10%. In a soft market such as Phoenix with high turnover, short-term leases and a somewhat transient market, the ratio can approach or even exceed 100%. The magnitude of turnover ratio and, in turn, the number of new leases (20 for New York City, 400 for Phoenix) written each year has a dramatic effect on how the property is operated. Consider the possible differences in: advertising budgets, "lost rent," turnover costs, the amount and quality of leasing personnel, financial record keeping, etc.

Life Cycle. Examining the dimension of the property's life cycle for our hypothetical apartment building, the turnover ratio (or, more accurately, the lease-up ratio) would be 100% when the building is newly developed. The ratio would range from 50% to 100% after rehabilitation, depending on the degree and process of the renovation. Obviously, in terms of the leasing function, these properties more closely resemble those in soft markets.

As this example demonstrates, without market knowledge, it is extremely difficult to prepare a thorough acquisition underwriting, and it is equally difficult to overcome the inevitable, but unforeseen, obstacles that materialize after a property has been acquired and is being operated.

Size And Performance

For organizations that do not have in-house management capabilities or, that do not have in-house capabilities for a particular cell, another important ingredient is the selection of a joint venture partner/investment manager. In fact, as institutional investors diversify away from core properties and into intensive real estate assets (i.e., defined to exclude an entire building leased to a major credit tenant with a triple net ten-year lease), selection of a joint venture partner will become increasingly important.

Ironically, there is a tendency to use the size of a potential partner's organization as a proxy for future performance. Now, surely, there is some minimum critical size beneath which a real estate operator cannot efficiently perform; however, the corollary—

that, as an organization continues to grow from this critical mass, its performance (at enhancing the value of the real estate assets) continues to grow—is not necessarily true. A review of no-load mutual funds clearly displays this tendency, with the smaller funds, on balance, outperforming the larger funds. Intuitively, this might appear to be true also for real estate investment companies: the more successful firms are more likely to concentrate on a particular set of cells along either the geographic or the property type dimensions. By limiting themselves to a particular set of cells along one of these two axes, successful firms are better able to build and utilize a knowledge base (specific to a geographic location or a property type) from which they will be able to outperform the competition.

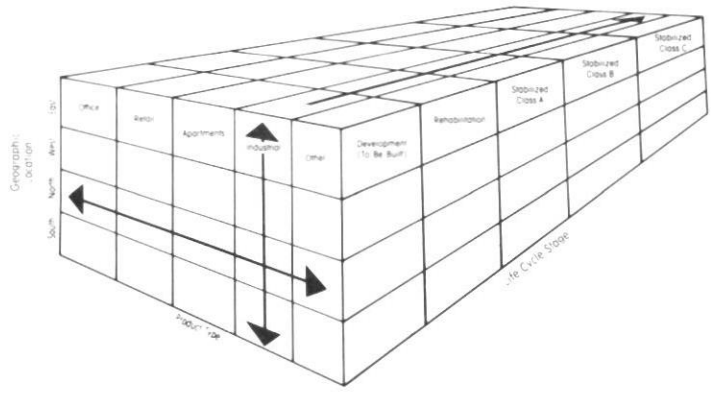
It is important to note that firms concentrating in a particular geographic location are capable of building and utilizing a knowledge base on all product types within their locale. Similarly, firms that specialize in a product type are able to amass market knowledge about that property type regardless of locale. However, firms that specialize in property at a particular life cycle stage are not always able to develop market knowledge of properties in other stages. The skills necessary to develop or rehabilitate a property are compatible with the skills needed to operate stabilized properties. However, the converse is not true: the skills necessary to operate stabilized properties are not sufficient to either develop or rehabilitate properties. Therefore, Figure 3 shows that rays in either the geographic or property type axes are bilateral, but the ray along the life cycle axis is unilateral.

Conclusion

Several premises have been presented here: (1) real estate as an investment class is very heterogeneous and includes the dimensions of property type, location and life cycle; (2) a concentrated allocation of investment to the three major institutional real estate

FIGURE 3

Comparison of Venture Partners' Real Estate Performance Skills



investment categories (investment-grade office, retail and industrial properties), at best, is likely to "meet the averages"; (3) in order to prudently overcome the present herd mentality, a diversification within real estate's various market sectors must be done with specific market knowledge in hand; and (4) the size of an advisor's/manager's firm is not necessarily a proxy for this specific market knowledge or future performance.

Although the real estate community has made great strides in providing standardized performance measurement, as compared to the stock and bond sectors, it has a long way to go with regard to standardized measurement techniques, breadth of market coverage and segmenting real estate asset classes. The three-dimensional depiction of real estate is intended to be a basis for segmenting real estate equity investments into meaningful groups which will enable a more satisfactory comparison of performances.

CAPITALIZATION RATE IN A DYNAMIC ENVIRONMENT

In the dynamic world within which we live, the capitalization rate is no longer a valid real estate calculation by itself, and it does not add much to investment analysis even when used in conjunction with other techniques.

by Bowen H. "Buzz" McCoy, CRE

This paper was given at the 15th Pan Pacific Congress of Real Estate Appraisers, Valuers and Counselors, Seoul, Korea, September 1990.

The thesis of this paper is that, in the case of property sales, the capitalization rate is the notational result of an often prolonged and arduous negotiating process, a calculation which is derived after-the-fact. The capitalization rate in and of itself is meaningless unless it is placed in context. What cash flows are being capitalized? Are buyer and seller utilizing similar assumptions? With what rates of return is the capitalization rate being compared? What can the buyer do with the property?

As will be shown, deficiencies with the capitalization rate become pronounced in the dynamic economic environment in which we currently live and the environment we are likely to experience in the future.

The volatility of the property sale market makes it more difficult for the real estate practitioner to rely on the capitalization rate as a basis for valuation of a property for other purposes. The practitioner must know a great deal more than is generally known about the transaction to utilize the derived capitalization rate for any other purpose. For example, how useful is it to know that the Stanford Court Hotel in San Francisco or the Bel Air Hotel in Los Angeles traded on a 1% nominal capitalization rate?

This paper will review the dynamic economic environment in which we live, discuss the difficulty of determining which cash flows to capitalize, describe alternative valuation techniques and modern portfolio theory and the buildup of a componentized rate of return, and review the reasons why aberrations occur in the capitalization rate.

The Dynamic Economic Environment

The capitalization rate was an extremely useful tool when the world was stable. We enjoyed a low interest rate and a low inflation rate environment for 20 years following World War II. During that time, there was little capital market volatility as we know it today. A rental stream and an expense stream could be capitalized for 10, 20, or even 30 years without burdening the calculation with too many assumptions. We now live in an age of volatility, with a greatly enhanced computational capability, which makes the simplistic techniques of the past less relevant. Let us examine some of the factors that have led to this new age.

Globalization. We talk today of globalized capital markets, but globalization is a highly imprecise term meaning entirely different things to different practitioners. At a minimum, this concept encompasses such factors as 24-hour trading in money and capital markets and assets that are linked through currency and interest rate swaps. A real estate transaction may be financed on a 30-day revolving

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floating rate basis which is later swapped for a financing on a medium-term fixed rate basis in a different currency.

A variety of new global financing techniques has evolved, including options, swaps, caps, futures or options on futures. These new techniques have enhanced the ability of real estate investors to access capital market activity, but they have also increased the volatility of the marketplace. Now, a real estate developer in Omaha must be concerned about efforts of the Bundesbank or the Japanese Ministry of Finance to control their countries' domestic monetary base. In fact, as capital market linkages progress, it will become more and more difficult for any central bank to establish unilateral domestic monetary policy.

With all these capital market linkages, what real rate of return should the practitioner be attempting to protect? How does one build up a capitalization rate for a long-term project that will protect against swings among a half-dozen major economies that are out of synchroneity.

Securitization. The securitization of real estate assets has come about as large capital market players, initially U.S. insurance companies and pension funds, sought to develop the means of integrating traditional real estate investment analysis into modern portfolio theory to make overall portfolio asset allocation decisions. This integration of real estate into modern portfolio theory means that real estate can no longer be considered a "special" asset with characteristics that justify its insulation from worldwide economic events.

Institutionalization. The thousands of individual trades which served the purpose of dampening volatility in the past have been converted through the institutionalization of savings by pension funds, insurance companies, money market funds, mutual funds and the like into single point decisions made by powerful forces. This concentration of decision-making has made capital markets much more volatile and risky and has increased the real rate of return required for long-term investments.

Deregulation. Deregulation of financial institutions, begun in the United States, has spread to other major capital markets. In the years ahead, there will be increasing pressure for deregulation, especially in Japan. The removal of regulations covering funding costs for financial institutions led to the bidding up of the cost of funds, which in turn led to the booking of more risky assets. As a result, the risk profile of many financial institutions has increased considerably, and the overall credit quality of these institutions has decreased. In certain capital market segments, such as U.S. thrift institutions and commercial banks, this has led to a sharp curtailment of the amount of capital available to real estate.

Sophistication. Only 25 years ago, calculations were made laboriously on electromagnetic calculators, and the results were noted on yellow accountancy workpapers. But now, with the proliferation of personal computers and computer networks, a sole real estate practitioner has unparalleled computational ability. This greatly enhanced capability allows the practitioner to manipulate data at will, building in different inflation assumptions for each variable for each year, if desired. Because such capacity is available, use of a single capitalization factor for a project makes a practitioner appear to be lazy as well as unsophisticated.

Hand in hand with computational ability goes database information retrieval. Not many years ago, the real estate practitioner's database was a stack of yellowing *Wall Street Journals*. Within a few years, we will all be linked by fiber optics, and we will each have in our offices a single device for computation, communication, data retrieval, video conferencing and the like. Most of the information revolution is still ahead of us, and it will have a significant effect on the industry. Real estate liquidity at present suffers from a lack of specific, local information. The information revolution should make real estate more liquid and even more closely connected to the worldwide capital market system.

In summary, real estate exists in an economic environment that is linked to an increasingly sophisticated, integrated and worldwide capital market system. Real estate therefore cannot insulate itself by claiming the uniqueness of specific locality. The paradox is simply this: to be a participant in the global financial system, real estate must become fungible.

Cash Flow Analysis

Before moving along to a discussion of real estate valuation techniques, let us for a moment refresh ourselves on cash flow analysis and in particular on how cash flow analysis relates to the current dynamic economic environment.

The volatility in capital markets combined with the volatility in real estate markets create the need for the practitioner to be much more analytical in determining which cash flows to value. The availability of increasingly powerful analytical equipment makes sophisticated analysis much more practical than it was in the past.

In the case of an *office building*, for example, differences occur among cities and among investors regarding the appropriate means of measuring the leasable area upon which rents are calculated. This item alone can produce a material distinction between what a buyer and what a seller thinks is the actual capitalization rate. What is a normal frictional vacancy rate under prevailing real estate conditions—3%, 5% or 10%? When initial rents are discounted through rental concessions or excessive tenant installation allowances, what number is utilized as base rent for calculating new rent on tenant rollovers? Should a real estate recession be programmed into a 10- or 15-year cash flow model? Should rents be inflated every year? Should rents in some years remain flat or be reduced? How do we account for deferred maintenance? How about fire and safety code violations or asbestos removal? How

do we deal with more exacting standards in the future?

In an *apartment complex*, how do we account for the replacement of carpeting and refrigerators over a 10-year cycle? What is normal maintenance?

In a *shopping mall*, what do we allow for the cost of cutting up a large, 20,000 square foot space into smaller units? How do we adjust for the expense of decking the parking area in order to create more freestanding tenant space? What premium do we exact from the one potential buyer for whom our regional mall provides tenant control within a market segment? How do we account for the cost of removing toxics from the subsoil under a parking lot built over a sanitary landfill?

In the case of a *hotel*, how much do we expend as a replacement reserve? Can we actually reduce expenditures on food and beverage service through operating efficiencies? Should we view telephone operations as a service or as a profit center? Should we rehabilitate three floors into an all-suite, concierge operation? What value enhancement does the property receive from a particular acquirer's reservation system and convention booking expertise?

The complexities of actually operating a property and integrating it into a prospective purchaser's overall business is far more complex than capitalizing a net rental stream. It is here that value is created and capitalization rate discrepancies occur.

Alternative Valuation Techniques

Let us examine briefly the range of alternative techniques of valuation to place the capitalization rate in proper perspective.

Internal Rate of Return gained great acceptance in the United States during the period of high inflation that ended in the early 1980s. This methodology allows one to pro forma rerent at much higher rates in the future, inflate expenses and capture in present dollars the resale of property in a future year. Computer-driven software has been developed over the last 10 years specifically for internal rate of return analysis by particular property types. As will be discussed, the internal rate of return calculation for a project is perhaps the best linkage into modern portfolio theory, making real estate a fungible capital market investment under asset allocation modeling.

Particular problems with this methodology on a stand-alone basis include: (1) the built-in assumption that the investor's opportunity rate for reinvestment remains constant and can be realized over the term of the investment; (2) the fact that cash flows may swing widely from negative to positive over the investment period and yet appear "smooth" in the final analysis; and (3) the exactness and predictability of the analysis which makes the inherent property management and leasing functions appear disarmingly mechanistic.

Net Present Value or discounted cash flow analysis is based upon the same theory of compounding of the rate of investment return as the internal rate of return calculation, but it computes a dollar amount rather than an overall investment yield. It is useful when annual returns vary widely, and it is particularly useful for analyzing investment in a particular project. It is not useful, however, in comparing returns to other projects or other forms of investment.

Market Sales have always been useful as indicators of value, so long as they have met the basic appraisal definition of a free market transaction. The more homogeneous the product type and the broader the list of transactions, the more useful this technique becomes. A problem in today's market is that bellwether transactions resulting from a prolonged worldwide auction of a trophy property are too often claimed to be proxies for market value in general.

Replacement Cost is always a good test of value. Other than superb locational dominance or zoning constraints, one wonders why anyone would ever pay more than the replacement cost for a property. Replacement cost also may provide a secondary indication of value in a temporarily overbuilt market when obtainable rents cannot support asking prices.

Residual Sale Value is really a subset of the internal rate of return calculation. It is worth highlighting, however, because in many cases it drives pricing. Investors justify purchases at seemingly high prices by assuming that they can "turn property around" (i.e., they can rehabilitate the property or reposition it in the market) and support a windfall sales price at a future date. Another phenomenon in recent years has been "capitalization rate arbitrage," which simply involves selling a property at a lower capitalization rate than the one used to purchase the property. One example of capitalization rate arbitrage is Marvin Davis' resale of the Beverly Hills Hotel in 18 months to the Sultan of Brunei. Another example of capitalization rate arbitrage is the differential in pricing of regional shopping malls over the past 15 years. In the mid-1970s, contract base rental income traded on an 8% basis, with overage rental income trading on a 12% basis. In the late 1980s, all income was undifferentiated and traded on a 5% basis.

In raw, undiscounted funds, the residual sale in some cases can amount to 50% of the funds returned to the investor. When discounted, depending on the timing of the assumed sale, the residual sale can provide 100 to 200 basis points toward the internal rate of return.

Gross Income Multiplier is derided by the computer whiz kids as archaic and overly simplistic; yet real estate veterans still find it a useful calibration for analyzing apartments quickly when they are out of the office, and it has become a useful rule of thumb for evaluating community shopping centers as well.

Years to Investment Payback suffers the same criticism as the gross income multiplier; yet it is very useful to individuals who have a full career's experience with thinking in these terms.

Dynamic Rate of Return Analysis is ultra-sophisticated and extremely useful in allowing analysis to focus on possible weaknesses with laser-intensity by "unbundling" various components of return. This analysis is a further refinement of internal rate of return analysis, and it is computer-driven. *Unburdened cash flow analysis* allows one to analyze the separate components of a mixed use project, the individual leases of an office building or the impact of a variety of financing or refinancing plans and to model redevelopment of an aspect of a project and the like. *Sensitivity analysis* allows one to measure the impact of an internal rate of return in a hotel project, for example, on changes in room rate, occupancy, food and beverage income, furniture fixtures and equipment allowances and the like. *Probability-Risk Adjusted Rate of Return Analysis* allows one to measure by statistical sampling. For example, one may compute for a hotel the internal rate of return assuming a 25% probability of a 65% occupancy, a 50% probability of a 70% occupancy as well as a 25% probability of a 75% occupancy.

Cash on Cash Yield returns are really a subset of the capitalization rate approach. In order to overcome the disutility of the capitalization rate approach in a dynamic environment, many investors now calculate the cash on cash return in each individual year of their investment horizon. Others focus on cash on cash yields in the initial, third, fifth and tenth year. Still others calculate an undiscounted arithmetic 10-year average cash on cash yield on a project. Such methods correct many of the deficiencies of the simplistic capitalization rate approach and can be very useful analytic tools. They do not, however, create a real estate rate of return which is useful in modern portfolio theory.

Modern Portfolio Theory

Computer-driven analytics have had great impact on the entire capital market investment process. The *capital asset pricing model* and modern portfolio theory have attempted to quantify investment risk and to develop coefficients of performance for various classes of assets, including real estate. As the investment process has become more sophisticated, computer-driven baskets of securities have been developed, including a model based on the entire Standard and Poor's index of 500 common stocks; a futures index based on the Standard and Poor's index; a "South Africa Free" common stock index; an index based upon the Shearson-Lehman bond index; indices of Japanese, German, Hong Kong or Thai common stocks; program trading and the like.

Historical rates of return and exposure to risk and volatility have been calculated for various classes of assets, including real estate. The proxy investment yield for real estate which most closely parallels the Standard and Poor's stock index or the Shearson-Lehman bond index in the capital asset pricing model is the internal rate of return calculation. Thus, real estate is being driven more and more to conform with this particular methodology in order to gain access to large multi-asset class capital pools, such as pension funds and insurance companies. An obvious problem in making real estate conform to this model is that there is no method for measuring real estate prices on a daily basis. Appraisals are not valid because they are determined after-the-fact, and price volatility is eliminated.

The entire movement toward the *securitization* of real estate is driven by the same motivation. Managers of large capital pools want to think of real estate debt and equity investments as just another fungible asset class. They therefore attempt to secure Moody's or Standard and Poors' bond type ratings for real estate, either through high credit tenants or the purchase of someone else's credit (credit enhancement) for a fee, so real estate debt will appear to resemble a high grade bond in the capital markets.

The continuing worldwide *institutionalization of savings* creates even larger capital pools with single point decision-making. In order for real estate to access these capital pools, it must assume the trappings of modern portfolio theory and appear to be fungible, giving up the uniqueness of location, design, marketing and specific performance.

The paradox is obvious. Appraisers with a lifetime of experience and judgment are replaced by 28-year-olds with a computer terminal. Huge errors in judgment are committed. Billions of dollars are lost. Real estate is removed from reality. But the world goes on.

One ray of hope is that the *computer revolution* has just begun. The computer today is where the electric dynamo was 100 years ago when it provided light to manufacturing processes driven by steam-driven crank shafts and overhead pulley systems. Once the computer is fully integrated into our work and our lives, say in about the year 2015, the individual should become liberated once again from these huge, multinational organizations, and a plurality of localized decisions may once again drive international financial transactions.

Componentized Rate of Return

It may be useful to withdraw for a few moments from market-driven transactions and contemplate an ideal rate of return, whether capitalized, internal, discounted or otherwise.

Real Rate of Return is the basic component of any rate of return calculation. It is meant to measure that riskless rate of return, free of inflation, which a long-term investor ought to expect. As a result of considerable regression analysis over a period of many years, the real rate of return expected in the United States at present is around 3%.

Inflation Assumption is the next component of a return calculation. What is the normalized inflation expectation over the term of the investment (say 10 years) which, if earned, will protect the real rate of return? The expectation in the United States today is about 5%, which creates an inflation-protected nominal rate of return of 8%.

Risk and Volatility have in recent years added a premium to this inflation-adjusted real rate of return. The added risk premium did not exist prior to the period of high inflation experienced in the late 1970s. Adding on a risk premium of 100 to 200 basis points provides us with a risk- and inflation-protected rate of return of around 9% to 10%. This is within the trading range of U.S. government long-term bonds and is just about what the return has been on U.S. common stocks over a long-term period.

Real Estate Premiums can be built up over and beyond this standard rate of return to account for additional illiquidity, additional risk (for example, a hotel), the burden of management, cyclically, complexity, overleverage, overbuilding and the like.

It would not be difficult to establish that the nominal rate of return for real estate should be in the area of 13% to 15% in the United States at present. Why the market returns are 300 to 400 basis points lower than this in generally overbuilt markets shall remain the subject for a different inquiry!

Reasons For Aberrations In The Capitalization Rate

As one can infer from the remarks to this point, there are many reasons for aberrations in the capitalization rate. It is very difficult to encapsulate in a single simplistic notation the multitude of analytics and emotions produced by a drawn-out negotiation. A few of the reasons for capitalization rate aberration are summarized here.

Collectibles is one way to phrase the interest in so-called trophy real estate. One man's Van Gogh is another man's Beverly Hills Hotel. Yield is immaterial. Pride of ownership and possession is paramount.

Capitalization Rate Arbitrage has been referenced previously. Below certain levels, it may become the adult version of "musical chairs." Where does the elephant sit? Wherever it wishes to.

Strategic Buyers are seeking an asset that empowers and enhances other assets they already own. This was true of Nestle in the purchase of the Stanford Court Hotel in San Francisco to anchor its U.S. system. It was true of the Corporate Property Investors' purchase of the Monumental Shopping Center portfolio to improve its dominance in markets like Atlanta and Boston. It was true of Trammell Crow Company's purchase of Jack Benaroya's 40% of the industrial property in Seattle.

Long-Term Investment Horizons cause certain investor types, notably Japanese insurance companies, to accept lower initial returns.

Different Perceptions in how an asset may be marketed or even physically configured cause value discrepancies, particularly between *investment type buyers* and *operating type buyers*.

Conclusion

In the sophisticated and dynamic world in which we live, the simple capitalization rate approach to value is no longer valid in isolation and does not add much to investment analysis even when used in conjunction with other techniques.

As for me, I use a matrix of valuation techniques, shifting my focus from property to property. Internal rate of return is a benchmark, but I am always suspicious of what it glosses over. I favor various forms of dynamic rate of return analysis, as well as cash on cash yields in each year and replacement value.

I never fail to see the property in its urban or suburban context. I walk the neighborhood and the roof, check the boiler room and talk with the tenants. I get a feel for the property, the market, the appeal, the politics and the management. I suppose you could label my approach the *Gestalt Theory of Investment Valuation*. It is what it is.

We each concoct a valuation stew of our own making. Whatever yours is, *Bon Appetit*!

INVESTIGATION OF THE VIABILITY OF DEVELOPER-ORIENTED REAL ESTATE PUT OPTIONS

A survey indicates that there is a potential need of specialized markets for originating real estate put options.

by Robert R. Trippi and Nadedjo Lare

Call options are financial contracts that confer upon their holder the right to buy an asset at a predetermined price on or before a certain date. Put options confer the right to sell an asset at a predetermined price on or before a certain date. Options of either type may or may not be exercised.

The use of options in the real estate industry has been the subject of a number of studies. In some involving real estate options, the aim has been to explore methods of improving market efficiency in terms of the liquidity of the instruments; in others, the focus has been on the normative pricing of such options.

This article reports on a study that investigates the marketability of three potential new classes of real estate options which ought to be of interest to income property developers:

- the option to sell a project upon future completion at the currently appraised value of the completed property
- the option to NNN (triple-net) master lease the entire project to the lessee at the current market rent
- the option to receive permanent financing of a predetermined amount at the currently prevailing interest rate (i.e., to secure a predetermined fixed-rate forward loan commitment)

In this study, the three options are considered to be exercisable at any time from the estimated date of project completion to their maturity dates. Such options are referred to as *at-the-money put options* from the standpoint of the developer-purchaser. More specifically, we consider only American spot options, i.e., options that may be exercised prior to their date of expiration and whose asset (sale price, rental income stream or loan) is deliverable immediately upon their exercise. These options are contrasted with options on commodity futures, for example. (For an overview of option concepts, see Cox and Rubinstein [5] or Jarrow and Rudd.[12])

Present institutions and instruments in many ways are deficient in offering the income property developer the means to adequately hedge against vacancy, liquidation and financing risks. For example, although master leases are commonly negotiated in advance of construction in the U.S. central city market, these leases imply that the owner has a legal obligation to deliver the space to the lessee. With an option, however, the owner may continue to attempt to lease space in the completed project to others. The option, then, is a form of insurance that

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may be used only if the owner is unable to rapidly lease space in the completed project on favorable terms. In our study, therefore, we test whether developers would be interested in presale and master lease options.

In most real estate markets, forward permanent loan commitments are available. In the past, it was occasionally possible to "lock in" the rate one or two years in advance (i.e., over the construction period for a major project). However, since interest rates have become highly volatile, "locking in" the rate of a loan commitment has become almost impossible today in most areas. A forward sale commitment cannot be unilaterally abrogated by the developer; so it differs from a presale option. In our study, we also hypothesize a possible perceived need for prespecified rate loan options.

Due to the uniqueness of each project and the lack of earnings history in the case of equity options on projects that are yet to be built, considerable documentation and diligence are required by the seller of each option. Existing organized options exchanges, such as those for stocks and other financial instruments, are simply not equipped for such documentation and diligence. Thus, our study also considers developers' preferences concerning the writers of new classes of real estate options.

The organization of the remainder of this article is as follows: A brief review of the literature related to real estate options is followed by an outline of the study's methodology. A summary and discussion of the survey results is followed by concluding remarks and suggestions for future research.

Related Literature

In the past 15 years, a large body of literature has developed for options on exchange-traded financial instruments such as stocks and commodities. Concurrently, the stagflation of the 1970s and the instability of the securities and commodities markets in the 1980s prompted many empirical studies that sought to find relationships between organized securities markets and real estate markets. Analogies were made, sometimes tenuously, between the instruments that were available in the organized securities and commodities markets and those that were used in the real estate industry. The studies discussed below, while not intended to provide an exhaustive review, are representative of the literature in the areas of real estate equity and mortgage instrument market efficiency and their relationships to options.

Gau, for example, examined the question of whether or not an efficient market paradigm should be adopted for the modeling and testing of real estate equity markets.[7] His examination of price series suggested that real estate markets were not efficient with respect to past price information (i.e., weak-form efficiency). However, the relationships he found were not strong enough to imply that accurate forecasting was possible. Corcoran attempted to explain the apparent paradox of rising rental fees and rising acquisition prices of commercial real property that existed in the 1980s.[4] He hypothesized that this phenomenon could be explained by a model that considered real estate as both a factor of production and an asset. Applying his two-market model to the commercial real estate market in the 1980s, Corcoran's explanation of the paradoxical 1980s' real estate market was that a production factor was an increased desire to hold real estate as an asset over and above those demands that normally would be associated with the rising demand for space. He concluded that the efficient market issue was important because most options models assumed at least weak-form efficiency.

In a significant paper, Benjamin, Shilling and Sirmans examined the valuation of options to purchase condominiums in the form of nonrefundable deposit and purchase contracts.[2] Since this combination is analogous to a European call option (further discussed in Johnson and Wofford[14] and Shilling, Sirmans and Benjamin[19]), this study applied the Black-Scholes options pricing model, which employs a computer simulation to compare the prices generated by the model with actual real estate purchase contracts.[3] The study concluded that:

- The relationship between the current market values of the asset and the exercise price of the option is a major determinant of the option premium; i.e., the lower the market price in relation to the exercise price, the lower the value of the option.
- The implied volatilities of condominium prices are quite different depending on the phase of construction. The implied volatilities during the final stages of construction are much higher than those in the first or second phase of construction.
- The model consistently overprices the call option for options written during the early phases of condominium construction.

Kummer and Schwartz examined the appropriateness of securities options valuation methodologies for the valuation of real property purchase options by appraisers and investors.[15] Two methods for determining the fair market value of the real estate option were considered: the Black-Scholes options pricing model and the binomial options pricing (BOP) model. Because of the BOP model's simplicity and its sufficient level of accuracy, the authors concluded that it provided appraisers and investors with a practical instrument for real estate purchase options valuation. However, their study did not include empirical testing. Miller, Sklarz and Stedman discussed related issues, including the difficulties associated with making available *standardized* real estate equity options contracts, based on some index, that could be traded on one of the existing organized options exchanges for hedging and other purposes.[18]

Thygerson studied the interest rate risks that are inherent in the granting of fixed-rate mortgage loan commitments from the point of view of the lending institution.[20] He considered two approaches

in hedging against the risks involved in making forward mortgage loan commitments: the Government National Mortgage Assocation (GNMA) futures market and the Black-Scholes options pricing model. The objective was to establish the market value of a fixed-rate mortgage commitment. Thygerson's results suggested that the debt market met the efficiency tests necessary for the Black-Scholes model to be safely applied to the valuation of loan options.

Mortgages are subject to default as well as interest rate risks. Epperson, Kau, Keenan and Muller have developed an options model for the pricing of fixed-rate mortgage default insurance.[6] Existing mortgages are in essence compound put options because the borrower can either default or purchase a new option to default on at each payment date. Using standard compound options theory arguments, Epperson et al. were able to produce values of the default option, and hence the insurance, for a variety of loan-to-value and interest rate volatility scenarios.

Gau and Goldberg reviewed the economic effects of instruments such as variable-rate and short-term rollover mortgages, which essentially shift the interest rate risk from lenders to borrowers.[8] They then examined the potential for shifting this risk from the mortgage participants to the financial futures markets because neither party in most mortgage transactions is willing to bear significant levels of risk. As a solution, they proposed a mechanism for shifting risk to other parties outside of the real estate market. One such mechanism would be a debt option keyed to mortgage rates.

Hall argued that the option to prepay (i.e., refinance) a standard fixed-rate mortgage differs significantly from the standard financial option, especially from the borrower's point of view.[10] Therefore, in order to apply conventional options pricing models to the prepayment option, the unique characteristics of the mortgage contract must be taken into account. He suggested that Bartter and Rendleman's two-state option pricing model was suitable.[1] This pricing model holds that the value of the option is conditionally dependent upon the value of the underlying debt instrument, which can be determined at any point in time by applying an interest rate tree to discount future cash flows from the instrument.

Ward showed the near-equivalence of an indexed, shared-appreciation mortgage and an American call option.[21] By assuming that a risk-neutral portfolio could be constructed from the mortgage and that a security (such as an index) was perfectly correlated with real estate prices, one could value such mortgages. The lender would have to hold a number of such mortgages to be sufficiently diversified and to ensure that the total value of the properties on which he holds mortgages closely track the index.

It is important to note that most research done in the area of real estate options has been theoretical, or it has concerned existing options instruments. There have been few reported investigations on the market appeal of potential options products to real estate developers or investors. Issues related to laying off certain types of risks have been largely ignored, e.g., the risks associated with prolonged vacancy, the risk of not promptly selling a project at completion and the risk of credit tightening. Such risks could, at least in theory, be lessened by taking long positions on put options on the presale of buildings, on master leases or on take-out loans, if such options were available. The present study focuses on the appeal (marketability) of such options and the likely prices commercial developers would pay for them.

Research Methodology

The data for the study came from a mail questionnaire survey of 1,200 randomly selected commercial real estate developers in the United States. The instrument and cover letter were pretested for content validity with development executives from six San Diego development firms, who provided valuable suggestions for improvement. The final version of the survey required about five minutes to complete. This final version contained 15 questions, several of which were repeated for each type of option, resulting in a total of 23 questions. Every question could be answered by placing a checkmark beside one of a series of multiple choice answers (e.g., job title) or beside a number on a predetermined scale (e.g., the acceptable percentage of loan principal to be paid for a loan option). The mailing included a cover letter explaining the purpose of the study, what was meant by the term "put option" and an inducement for completing the instrument, which consisted of a report of the tabulated results. The mailing produced 91 usable replies.

An attempt was made to determine if there was significant bias related to the degree of interest in real estate options among non-responders by telephoning 50 of the individuals who had not responded to the mail survey but who had not moved or been otherwise unavailable. Nearly 70% of these individuals indicated that they simply had been too busy to respond to the mailing, and 20% indicated that the activities in which they were engaged within their respective firms were not appropriate for the survey. In addition to increasing the sample size by 36, this telephone survey showed that the distribution patterns in this latter group did not differ markedly from the mail respondents on the key questions related to an expressed interest in put options for risk reduction. The follow-up telephone survey therefore indicated that non-response bias was not a significant problem. Overall, the respondents identified themselves as either president (60%), vice president of finance (31%), controller (1.6%) or operations manager (5.5%) of their respective development companies.

In addition to subjecting the response data to various statistical tests, the Black-Scholes options valuation model was used to compute the implied volatilities for the mean survey prices of the three types of put options at three different maturities. In

this phase of the study, the following assumptions were made: (1) the interest rate was set at 11%, which was roughly the rate on construction loans during the period of the study; (2) the exercise price of the call was assumed to be equal to the current value of the asset; (3) dividends were not considered; and (4) the options were, as required by the Black-Scholes model, of the European type.

Results And Discussion

Tables 1-3 display the results of one-way ANOVA for repeated measures that test for mean differences in acceptable costs for options maturities at 3, 9 and 18 months. These results reflect the percentage of the market value of a completed project for a put option on a presale and on a master lease (Tables 1 and 2), and the percentage of the loan amount for a put option on a take-out loan (Table 3). The cumulative distributions of the reported acceptable costs of the options are shown in Figures 1-3. Table 4 shows in sigma values the variation in implied volatilities for the three options maturities which were computed using the Black-Scholes options model.

The survey results shown in these tables and figures indicate that, as expected, the respondents are willing to pay significantly more for options with long maturities than for options with short maturities. This finding is in accordance with conventional options pricing models for securities which hold that the longer the duration of an option, the greater the value of the option. However, the survey results also indicate that the Black-Scholes valuation model does not fit well when it is applied to the prices developers are willing to pay for the various put options because, as Table 4 demonstrates, considerably greater annualized implied volatilities result for options with longer maturities. In our case, the Black-Scholes assumption of a European-type option (i.e., one that can be exercised only at maturity) is a poor one. Each of the three types of options as defined are of the American-type (i.e., they can be exercised at any time from the completion of the project to the maturity of the option). Furthermore, the effective dividend (carry cost) on each option is negative. Put options with negative dividends have a high likelihood of early exercise, and therefore they are poor candidates for European pricing. These difficulties limit any application of the Black-Scholes options pricing model in our study, and they are probably responsible for the observed conflict in implied volatilities for options at the various maturities (see the note).

Tables 5 and 6 show the relative degree of interest and the perceived value of the proposed options for hedging purposes. There is a significant difference between the mean values and the values obtained on the "not interested" scale in Table 5, indicating that the respondents as a group are definitely interested in the possibility of buying all three

TABLE 1

One-Way ANOVA for Mean Prices* Corresponding to Three Different Durations of a Put Option on a Presale of a Project at Completion (No. = 98)

Source	Degrees of Freedom	Sum of Squares	Mean Square	F	Significance
Between subjects	97	1986.54			
Within subjects					
Treatments	2	259.35	129.68	66.67	$p < .0005$
Error	194	377.31	1.94		
Total	293	2623.20			

Means Representing the Percentages of Project Market Value Developers Would Be Willing to Pay for Options:

Option Duration	No.	Mean (%)	Standard Deviation
3-month option	98	1.54	2.34
9-month option	98	2.56	2.54
18-month option	98	3.84	3.52

The Scheffe tests for differences between the individual means reveal that:

1. Respondents are willing to pay significantly more for a 9-month put option than for a 3-month put option ($p < .0005$).

2. Respondents are willing to pay significantly more for an 18-month put option than for a 9-month put option ($p < .0005$).

**Prices are reflected as percentages of the project market value.*

TABLE 2

One-Way ANOVA for Mean Prices* Corresponding to Three Different Durations of a Put Option on a Master Lease of a Building at Completion (No. = 89)

Source	Degrees of Freedom	Sum of Squares	Mean Squares	F	Significance
Between subjects	88	1482.82			
Within subjects					
Treatments	2	156.07	78.04	28.94	p<.0005
Error	176	474.59	2.70		
Total	266	2113.48			

Means Representing the Percentages of Project Market Value Developers Would Be Willing to Pay for Options:

Option Duration	No.	Mean (%)	Standard Deviation
3-month option	89	1.74	2.45
9-month option	89	2.82	2.58
18-month option	89	3.61	3.09

The Scheffe tests for differences between the individual means reveal that:

1. Respondents are willing to pay significantly more for a 9-month put option than for a 3-month put option ($p < .0005$).

2. Respondents are willing to pay significantly more for an 18-month put option than for a 9-month put option ($p < .0005$).

**Prices are reflected as percentages of the project market value.*

TABLE 3

One-Way ANOVA for Mean Prices* Corresponding to Three Different Durations of a Put Option on a Take-Out Loan (No. = 88)

Source	Degree of Freedom	Sum of Squares	Mean Squares	F	Significance
Between subjects	87	1137.91			
Within subjects					
Treatments	2	102.30	51.15	31.01	p<.0005
Error	174	287.04	1.65		
Total	263	1527.25			

Display of Means Representing the Percentages of Take-Out Loan Amount Developers Would Be Willing to Pay for Options:

Option Duration	No.	Mean (%)	Standard Deviation
3-month option	88	1.11	1.85
9-month option	88	1.81	2.10
18-month option	88	2.64	2.93

The Scheffe tests for differences between the individual means reveal that:

1. Respondents are willing to pay significantly more for a 9-month put option than for a 3-month put option ($p < .0100$).

2. Respondents are willing to pay significantly more for an 18-month put option than for a 9-month put option ($p < .0010$).

3. Respondents are willing to pay significantly more for an 18-month put option than for a 3-month put option ($p<.001$).

**Prices are reflected in percentages of loan amount.*

FIGURE 1

Cumulative Distribution of Percentage of Project Value Developers Are Willing to Pay for Put Options on Presale of Project

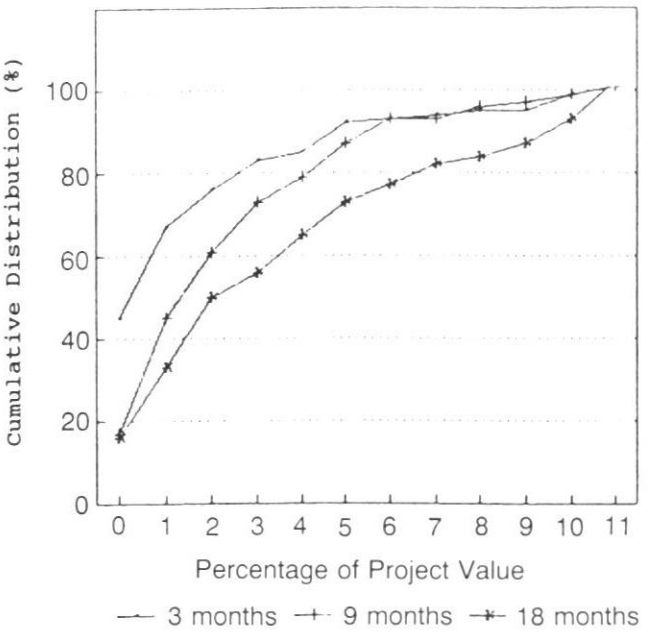

FIGURE 2

Cumulative Distribution of Percentage of Project Value Developers Are Willing to Pay for Put Options on Master Leases

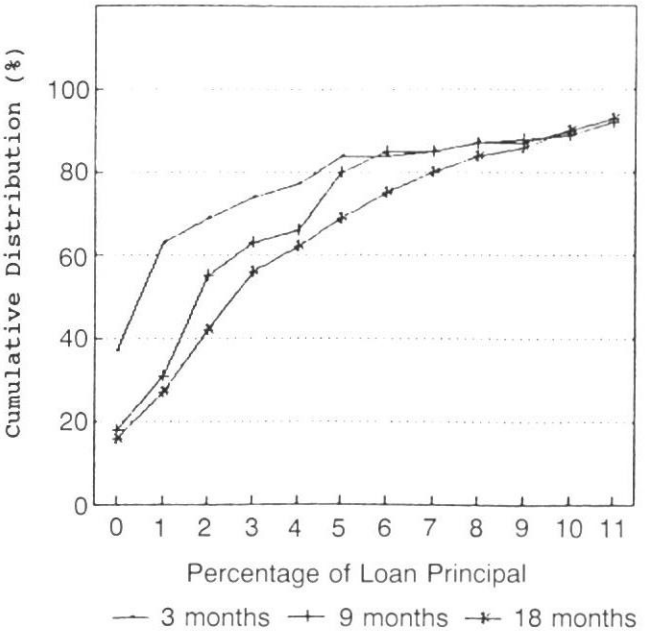

FIGURE 3

Cumulative Distribution of Percentage of Loan Principal Amount Developers Are Willing to Pay for Put Options on Take-out Loans

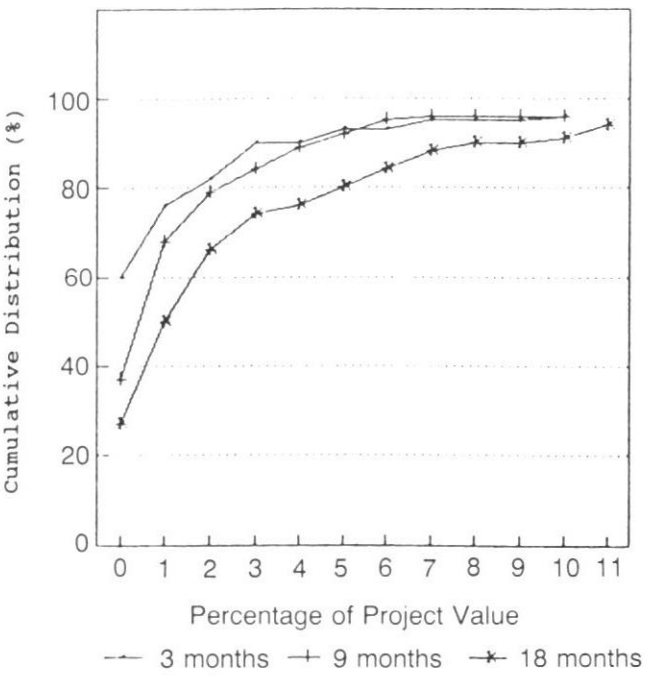

TABLE 4

Implied Sigmas from the Black-Scholes Model that Give Put Prices Corresponding to the Mean Prices Developers Are Willing to Pay for Three Different Types of Put Options at Three Different Durations

Options	3 months	9 months	18 months
Presale	.1425	.1750	.2175
Master lease	.1450	.1825	.2075
Take-out loan	.1025	.1305	.1700

kinds of options. This finding suggests that the potential exists for developing markets for instruments that cover the three types of risk considered here. There is a significant deviation from the neutral point (which stands for "no opinion") about the extent of agreement respondents have on the abilities of the options to protect against risk; the mean response falls in the "agree" portion of the scale for each type of option as a "good hedge" (Table 6). This finding suggests that the respondents are confident that the options will protect their firms against risks. It also indirectly confirms respondents' interest in these options and suggests that strategies to promote the sale of such options to developers will be most successful if they stress the "good hedge" aspects of the instruments.

TABLE 5

Degree of Interest in Three Kinds of Put Options; Together with Test for Deviation of Mean Response from the "Not interested" Scale Value

Type of Put Option	No.	Mean	t-ratio for Standard Deviation	t-ratio for Deviation from Zero	Significance
On sale price	126	1.6587	1.075	17.33	$p<.0005$
On master lease	126	1.4683	1.025	16.08	$p<.0005$
On take-out loan	125	1.7040	.951	20.04	$p<.0005$

Scale values: 3 = very interested; 2 = interested; 1 = slightly interested; 0 = not interested

TABLE 6

Student's t-tests for Deviation from the Neutral Point* of Response Means on the Hedging Abilities of Three Kinds of Put Options (No. = 126)

	Mean	Standard Deviation	t test	Significance
An option on the sale price is a good hedge.	3.7143	.987	8.13	$p<.0005$
An option on a master lease is a good hedge.	3.8016	.858	10.49	$p<.0005$
An option on a take-out loan is a good hedge.	3.8730	.800	12.25	$p<.0005$

**The neutral point is reflected by a scale value of 3.*
Scale values: 5 = strongly agree; 4 = agree; 3 = uncertain; 2 = slightly disagree; 1 = strongly disagree

Table 7 shows the expressed types of options that are most likely to meet developers' needs. Although there are significant differences in respondents' degree of belief in the value of the various options, there is considerable faith that each will meet at least some perceived need. The lower percentage of respondents who attribute a high value for options on take-out loans may be due to the following factors:

- Since the actual interest rate on the loan was not specified, the respondents may feel somewhat uncertain about the meaning of this alternative.
- The risk of not promptly selling a speculative project upon completion and the risk of prolonged vacancy are potentially more devastating than the risks associated with volatile interest rates.
- This type of risk coverage already partially exists in the form of individually negotiated, forward loan commitments from savings and loan and other lending institutions. Most lenders do not, however, commit to a forward rate, and many make the loan amount indirectly contingent upon the then prevailing rate. The latter is the result of the lenders' "debt coverage ratio" rules which force an inverse relationship between the loan amount and the interest rate at the time of funding.

TABLE 7

Chi-square* Frequency Analysis of Choices of Types of Options Chosen as "Most likely to Meet Developers' Needs"

	Frequency Chosen	Frequency not Chosen	Percentage (%) Chosen
Presale option	91	20	82
Master lease option	64	47	56
Take-out loan option	52	59	47

**Chi-square (d.f. 2) = 30.57, $p < .00001$.*

Table 8 illustrates respondents' relative preferences for the potential writers of options. There are

significant differences in these preferences, with insurance companies being the most desirable sources from which to buy options (78%), followed by commercial banks (63%) and real estate brokerage firms (21%). These findings suggest that if markets for such options are developed, insurance companies and commercial banks would be favored to play major roles as the writers of the options, which might lead to new and promising business niches for these institutions.

TABLE 8

Chi-square* Frequency Analysis of Developers' Preferences for Three Types of Sources for Options

	Frequency Chosen	Frequency not Chosen	Percentage Chosen
Insurance companies	82	25	78
Commercial banks	71	41	63
Real estate brokers	24	88	21

**Chi-square (d.f. 2) = 77.13, p < .00001.*

Table 9 shows the correlations between respondents' interest in options and their faith in options as protection against risk. There is no significant correlation between a respondent's degree of interest and either the size of his firm or number of years he has been in the real estate business. If the risks are perceived similarly by developers regardless of the sizes of their companies, then options should be designed to appeal to a market that includes both the large and small developers. There is no significant relationship between a developer's expressed degree of involvement in decision-making and either his degree of interest in buying options or the prices he is willing to pay for them.

TABLE 9

Pearson r's for Relationships Between Developers' Degree of Interest in Options and Their Extent of Agreement on the Ability of the Options to Protect Against Three Types of Risks

	No.	r value	Significance
Presale option	126	.4958	p<.0005
Master lease option	126	.5157	p<.0005
Take-out loan option	125	.5261	p<.0005

Tables 10 and 11 show the correlation between company activities and a respondent's degree of interest in presale and master lease options. Pearson r's are significant only for those firms whose activities include shopping center development. There is no significant correlation between company activities and the degree of interest in take-out loan options.

TABLE 10

Pearson r's for Relationships Between Developers' Company Activities and Their Degree of Interest in Put Options on a Presale

Activity	N	r value	Significance
Development of shopping centers	126	.2809	p = .001
Development of office buildings	126	.1308	p = .144 (NS)
Development of residential income projects	126	.1169	p = .192 (NS)
Development of industrial buildings	126	−.0061	p = .946 (NS)

TABLE 11

Pearson r's for Relationships Between Developers' Company Activities and Their Degree of Interest in Options on Master Leases

Activity	No.	r value	Significance
Development of shopping centers	126	.3148	p < .0005
Development of office buildings	126	.1535	p = .086 (NS)
Development of residential income projects	126	.1655	p = .064 (NS)
Development of industrial buildings	126	−.0226	p = .802 (NS)

Table 12 shows the correlations between respondents' degree of interest in the three kinds of options and the amounts they are willing to pay for each. Attempts at multivariate analysis, such as regressing the price respondents are willing to pay as a dependent variable against combinations of other variables, have been disappointing. This is consistent with the many pairwise Pearson r's that have been found to be insignificant.

In general, the study reveals the following:

- The more the developers are interested in buying each type of option, the more they agree that the option is a good hedge against risk. This finding is consistent with the general principle that a business person is likely to show interest in an investment which offers a valued protection.
- In general, respondents whose companies are

engaged in the development of shopping centers are significantly more interested in the idea of purchasing options of all types than are those whose companies are primarily engaged in other activities (Table 10). Engagement or nonengagement in other types of activities (development of offices, income-producing residential properties, industrial complexes and others) is not highly correlated with an interest in any one of the three types of options. This suggests that targeting of new options products to companies that develop shopping centers may be a good strategy, at least initially.

- Respondents who are most interested in seeing that the various 9-month and 18-month options are regularly available also are willing to pay more for these options (Table 12). This reflects genuine understanding and concern about the risks involved, and it further supports the potential of a viable market in these types of risk-ameliorating instruments.

TABLE 12

Pearson r's for Relationships Between Developers' Degree of Interest in Seeing Options Regularly Available in the Real Estate Market and the Amounts They Were Willing to Pay for Them

	No.	r value	Significance
Presale option:			
3 months	96	.1673	p = .103 (NS)
9 months	98	.2848	p = .004
18 months	99	.3307	p = .001
Master lease option:			
3 months	88	.1381	p = .200 (NS)
9 months	90	.4047	p < .0005
18 months	91	.4038	p < .0005
Take-out loan option:			
3 months	94	.1559	p = .133 (NS)
9 months	96	.2623	p = .010
18 months	93	.3024	p = .003

Conclusions

The primary purpose of this study is to determine whether options on the presale of income property projects upon completion, on master leases and on take-out loans are instruments for which there may exist a latent market. This study, which concentrates on the demand side exclusively, reveals that developers as a group do express a high level of interest in the potential availability of the three types of put options discussed. The study also establishes a rough distribution of the prices that developers are willing to pay for such options.

Although some developers use interest rate futures instruments and ad hoc presale and lease arrangements to hedge risk, these methods for the most part are available only to large firms that build prime trophy properties. Even then, these instruments are not satisfactory, because they are costly (e.g., entailing disproportionate sales and leasing commissions) and result in the loss of upside potential in favorable markets. Although there is plenty of anecdotal evidence of a latent demand for risk-ameliorating options, we believe that this is the first study to attempt, admittedly crudely, to assess the magnitude and sources of that demand.

We have dealt only with the viability of primary markets for the three types of options. These can be easily standardized with respect to life and strike price but not with respect to dollar amounts or property location. Liquid secondary markets may or may not develop, but they are most likely to develop for the loan option. However, competition may easily emerge in the market for writing the primary options, much as competition occurs among potential underwriters of initial public offerings of stock. Our results suggest that most developers prefer to deal with insurance companies and commercial banks as sources from which to purchase options. These institutions also are capable of laying off at least part of the risk of option writing through diversification across property type and geographical location and through hedging in other financial markets.

Further Research

An obvious area for future research would be to focus on the supply-side and determine the degree to which potential options writing institutions might be interested in writing these types of options and the range of prices they might charge to do so. The results of a supply-oriented study would measure the extent to which the price distributions of potential options writers and buyers overlap and would thus determine the feasibility of establishing markets that specialize in the origination of such options. Another area of possible further research would be to duplicate the present study in different geographical regions, for example, in Europe. This would enable comparisons across financial markets that have different institutional structures.

(A copy of the entire questionnaire and accompanying materials is available from the authors upon request.)

NOTES

The original assumptions of the Black-Scholes model are violated for these options, since a riskless hedge cannot easily be created against movements in price for the underlying asset (except possibly for the take-out loan type option, where interest rate futures or forward contracts can be rolled over). However, since Kummer and Schwartz, Johnson and Wofford and Shilling, Sirmans and Benjamin have all discussed Black-Scholes equity options pricing, we thought it would still be of some interest to see whether the model's formula would produce consistent implied volatilities.

Several factors may be responsible for the poor fit of the Black-Scholes model here, including the possibility of early exercise, the lack of risk neutrality and the absence of normal logarithmic distributions of the terminal asset price; Geltner (1989) discusses the deficiencies of analytic options pricing models in the context of raw urban land. However, the Black-Scholes formula may be interpreted as the mathematical expectation of the present value of an option on an Wiener-diffusion-return asset, whether or not a riskless hedge can or cannot be created. Thus, there is some justification for examining the implications of the Black-Scholes model for illiquid assets, making the assumption that either

investors are risk-neutral or the capital asset pricing model-type assumption that the price movement process is non-systematic and diversifiable and therefore has no risk premium. Even if investor preferences are such that risk aversion exists, the Black-Scholes model provides lower bounds on actual put values for known volatilities, or equivalently, upper bounds on implied volatilities when option prices are given.

Other options pricing models have been developed which relax the Black-Scholes type assumptions. For example, riskless hedges cannot, in general, be created for assets with jump returns. Merton[16,17], Johnson and Stulz, [13] Harriff, Brill, and Trippi [11] and others have created options models for such assets relying on these weaker arguments. (see also Cox and Rubinstein.[5])

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FOREIGN INVESTMENT IN U.S. REAL ESTATE

Investment in U.S. real estate by foreign institutions and individuals may slow down in the 1990s, but it will continue to be a major influence on the real estate market in this country.

John McMahan, CRE

Foreign investment in the United States can be put into historical perspective with just one phrase that tells it all: the United States was built by foreign capital. It is a long and honored tradition in America and an absolute requirement of economic development in a massive continental nation such as ours to have foreign investment. This fact often is lost on members of Congress and others.

Historical Perspective

In American history, there have been basic foreign investment themes. In prerevolutionary days, there was tremendous land speculation in America primarily handled through syndications sold into European markets, particularly England's. One of the major facts that led to the American Revolution was the Crown's effort to suppress these activities.

After the Revolution, land syndicates involving major foreign participation were a major force in moving the population beyond the Appalachians and to the old Northwest.

Between 1850 and 1880, U.S. railroads were given land by Congress in order to extend their route systems into the far West. Railroads sold massive amounts of securities backed by land in European investor markets.

Between 1880 and 1920, there was an inflow of capital from England, Scotland and Ireland into U.S. farm land investment. Major cattle ranches and farming combines were put together based on European capital. Interestingly, this is the time when most of the statutes restricting foreign investment and ownership of agricultural land came into being at the state level.

After World War II, the English backed Zeckendorf and other U.S. investors. The English also were active in some of their own investments. The Pan Am building, for example, was syndicated in England. In the 1960s, off-shore real estate mutual funds sold shares to small investors in Europe. These were unsuccessful as they were marginal properties that were poorly structured and often involved fee rip-offs. Today, many individual European investors remember this period and are very careful about making investments in the United States.

The 1970s saw major increases in oil prices. With this came the need to recycle funds. Middle Eastern capital started coming into the United States for the first time, as well as Latin American flight capital. This period also witnessed the move of major Canadian developers into the United States. With few exceptions, ventures financed by these investors were not successful.

In the 1980s, the Japanese, who had been investing only marginally in U.S. joint ventures, really

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started to hit their stride. Important new sources of investors from Hong Kong, Singapore, Taiwan and other areas also developed at this time. As we enter the 1990s, we can look back on a long historical experience with foreign investment that has come from virtually all over the world.

Current Trends

How big is foreign participation in the U.S. real estate market? At the end of 1988, the value of the commercial real estate market in the United States was $3.5 trillion. Foreigners held less than 1% of that market or about $32 billion; pension funds about 2%; securitized real estate about 2.7%; financial institutions about 20%; and U.S. corporations, which are by far the largest holders of U.S. investment real estate, about 74.4%. If you do not consider holdings by corporations and financial institutions, foreign investment represented 16.3% of this market in 1988 vs 22.2% in 1982. So, in terms of market share, foreign investment has actually declined.[1]

How fast is it growing? Looking at the period from 1982 to 1988, foreign investment in real estate has grown about 25% a year. This compares to a growth rate for securitized assets of about 45% and a growth rate for pension fund assets of about 43%. Foreign investment has not been growing as fast as other forms of domestically generated investment, which explains its decline in market share.

Where does it come from? By the end of 1988, Europe slightly dominated U.S. foreign real estate investment with 33% of the investment assets. Japan had 31% of U.S. investment assets with by far the fastest rate of increase. Latin America was third with 16%; Canada fourth with 13%. All others had about 7%.[2]

What are some of the factors driving investment in U.S. real estate? From the institutional point of view, yields are the basic driving force. In the 1970s and early 1980s, yields were higher in U.S. real estate than they were in real estate in other countries. So the fundamental driving force for this investment and flow of capital remained what institutions always try to achieve: improvement in their returns on assets.

In some cases, this quest for yields has been short-term in nature. Major syndicators in Japan, as an example, have bought U.S. assets, resyndicated these assets back into the Japanese market and taken a spread on arbitrage of yields. There also has been a move among institutional investors for country diversification. The weakness of the U.S. dollar also has been an attractive factor, as has the higher transaction volume of the U.S. market, making it possible to build a portfolio more quickly in this country than in others.

For individual investors, the fact is that a good part of foreign capital flows involves the diversification of flight capital in order to reduce the risk a particular family faces in its own country. Investors from these countries are looking for a safe haven. We have established legal institutions to facilitate investment. Our market has free entry. We have financing sources that are not common to other countries.

Where are investors buying? One of the traditional theories is the "port of entry" concept. That is, foreign investors invest in those areas of the country where their nationals most commonly arrived at some point in time: San Francisco has been the magnet for investment from the Chinese community; Los Angeles has been the site of investment from the Japanese; Chicago, New York and other areas in the East have been targets of European investment. The Japanese, as an example, put 40% of their money in 1988 into three markets: Los Angeles, New York and Honolulu.[3]

This port of entry theory is breaking down to some extent today as foreign investors become more sophisticated and, frankly, run out of opportunities in the markets where they first began their investment activities. Other markets, such as Atlanta, Boston, Washington, D.C. and Seattle, are emerging as new targets for foreign investors.

What products are they buying? Let's look at the Japanese since they are by far the most active of today's foreign investors. In 1989, 23% of Japan's investments in the United States went into office buildings, 28% into resorts and hotels, 15% into mixed uses, 15% into residential developments, 2% into retail, 2% into industrial uses and 9% into land.[4]

Japan's investment transactions are getting smaller, but they are still very large. The average transaction in 1989 was $50.8 million. That was down from $78 million in 1988.[5] It is pretty clear that, as Japanese investors diversify into secondary markets and buy other types of products, they will reduce the size of their transactions.

Who is Buying? Let's look again at the Japanese experience. In 1989, 49% of Japan's investments in U.S. real estate came from firms involved in either construction or development, 6% from life insurance companies, about 17% from business firms and 21% from individuals. Individual Japanese investors are a new force in the market, becoming active only in the last few years. Pension funds are important as a result of a change in policy made by the Ministry of Finance which allows these funds to invest up to 20% of their assets abroad (it had only been 3% before).

In terms of a risk profile, 56% of the Japanese investment in 1989 went into existing properties and 44% was in new development. This was a substantial increase in development activity over the previous three to four years. In terms of deal structures, the Japanese continue to prefer joint ventures. About 54% of these investments were in joint ventures and about 46% were in fee ownership.[6]

Major Issues

I want to address three major issues. The first is the risk-return relationship that exists in U.S. real estate today. As I indicated, most of the foreign investment is made by institutional funds, and it is

yield driven. Today, cash returns in U.S. real estate range between 6.5% and 10%, depending on the market. These returns are higher than the returns in Europe, which range from 5% to 6%, and they are dramatically higher than the returns in Japan, which are about 2%.

It is in the total return area that the U.S. real estate market is developing some problems. For the first time in the last five years, we find total returns in overseas markets exceeding those in the U.S. markets. This is due to several factors, the most important of which is the much stronger role of government in the development process abroad. This tends to limit supply and prevents the overbuilding that has been experienced in the United States.

An examination of U.S. returns over the last five years shows that for the first time since World War II, real estate trails bonds. This, of course, is forcing institutional investors to reconsider the asset allocation issue. As a result, British investors pulled out of U.S. investments last year, feeling they could get higher returns in European real estate. The Japanese also are increasing their investments in Europe.

It is pretty clear that if risk-return relationships do not improve, the United States will see a lower share of the real estate market held by foreigners as foreign investment activity slows down.

A second major issue I want to talk about is vertical integration. I refer to an excellent paper by Larry Bacow from the Massachusetts Institute of Technology.[7] *(For complete text of Bacow's paper, see pages 1–8.)*

Clearly, there is an underlying fear in the U.S. real estate community that if foreign firms integrate in this country as they have in their own countries, they can establish a monopoly position and force out U.S. firms or dilute the market share of U.S. firms. In a period of a possible recession and soft markets, having to share this diminishing return with foreign nationals is not a good prospect. This fear is experienced by individuals and firms who otherwise are very favorably disposed towards foreign real estate investment.

Bacow's paper concludes that vertical integration will not be successful in the United States. Let me review some of his reasons. First, vertical integration of U.S. real estate has not worked for U.S. or Canadian firms that have tried it in the past. There is no reason to believe that it would work better for other foreign firms. U.S. markets are too dispersed in terms of multimarket activity. They certainly are not homogeneous.

A third major issue is regulation. It is the position of some people that foreign investment in the United States should be absolutely prohibited. This type of thinking is reflected in 27 state laws, many of which were introduced in the late 1800s, that deny ownership to foreign investors, although most of these laws are directed at the ownership of farm land and not at the ownership of investment properties.

The next level of regulation is the registration of foreign ownership, which is generally proposed at the federal level. This type of regulation often is introduced as a tracking device. In most cases, it ends up being a harrassment device. Today, legislation (FIRPTA) requires more disclosure on the part of foreign national investors than it does from American investors.

The third area of regulation is taxation. If there are treaty provisions, foreigners can be treated better than U.S. investors. Here, there is a move toward achieving equality between U.S. and foreign investors. In future years, no doubt several attempts will be made to pass measures that will limit foreign investment unless there is "reciprocity" from other countries.

Prospects For The Future

In terms of the future, there will be continued foreign investment in the United States, and foreigners will continue to be major players in the U.S. real estate market. Because of the yield problem, there will likely be a slowdown in the rate of foreign investment and a shift in the movement of assets to other nations. There will likely be limited vertical integration, except in certain homogeneous markets.

Foreign investors will influence one aspect of the real estate market that is not healthy for U.S. real estate firms: there will be fewer transactions. Most foreign investors will not be recycling properties for some period of time. There will be less volatility because of the longer term investment perspective of many foreign investors.

There is clear evidence of globalization of real estate. This follows the globalization of the securities market over the last ten years. Finally, there is an increased level of institutionalization of U.S. real estate partially because most foreign investors are institutions.

Generally speaking, the 1990s will be very challenging in terms of the changing structure of the real estate industry. By the end of this decade, foreign investment will not be discussed in the same sense that it is today. There will be acceptance of the fact that there is a worldwide investment market. Some investment goes out; some comes in. Dealing with a global market will be just a part of the day-to-day life of the real estate professional.

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CORPORATE HEADQUARTERS RELOCATION

Contrary to popular belief, corporations that are headquartered in large metropolitan areas are less likely to relocate than rapidly growing corporations and those that are headquartered in the Northeast and the Middle Atlantic states.

by Joseph H. Eisenberg and Roger Friedland

The authors want to thank Frank Mittelbach for his many helpful comments.

The relocation of corporate headquarters has a major impact on a city's economic development and its real estate markets. Potentially footloose headquarters are courted by real estate brokers, office developers, consulting firms and, of course, city officials. The threat of headquarters relocations have impelled cities and states to offer ever greater tax, expenditure and regulatory subventions to induce corporations to stay put. But which corporations stay and which go? Are certain kinds of firms headquartered in certain kinds of places more likely to relocate their headquarters than others? This article aims to answer these questions by analyzing the organization and location determinants of headquarter relocations.

Most research on corporate headquarter relocations has focused on the types of places that gain or lose headquarters rather than the types of firms that relocate. Several studies have described the redistribution of corporate headquarters within the urban system.[1] These studies have shown that, paralleling the more general patterns of postwar urban growth, corporate headquarters have been moving outwards from core metropolitan areas to suburban rings and from older to newer industrial areas.[2] Notable is the exodus from New York City and other older metropolitan areas and the rise of headquarter centers in major Sunbelt metropolises.[3]

All of these studies have accounted for headquarter relocation on the basis of location factors. The factors most frequently cited as contributing to the redistribution of corporate headquarters include the distribution of the population, the cost of labor, the local availability of advanced business services, the amount of local business and personal taxes, the cost of land and living, the amount paid for office rents and the amenities offered by the environment.[4]

Real estate firms also have commissioned studies that sought to identify the location factors that are most relevant to headquarter relocation decisions.[5] These studies usually have been based on surveys of corporate CEOs and emphasized less tangible factors such as a metropolitan area's "business climate" and "quality of life." How closely CEOs' preferences concerning attractive corporate headquarters locations relate to the realities of relocation behavior also remains a subject of fierce debate.

Other studies have addressed the impact of information technology, particularly advances in telecommunications and decentralized computing, on headquarter mobility. By permitting quick access to specialized information and services, information

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technology may have facilitated corporations to move their headquarters. Moreover, information technology may have fostered these relocations by allowing selected activities that formerly had to be combined with others in a major central headquarters facility to be spun off and located elsewhere without sacrificing ease of communications.

The aforementioned lines of research have enriched our understanding of the types of places that are most likely to gain or lose from relocation, as well as the technologies that make relocation economically feasible. They do not tell us, however, which firms are most likely to act upon these opportunities. Consider, for example, that while a substantial number of corporate headquarters are leaving the central cities of the largest metropolitan areas, others are moving in. This phenomenon suggests, among other things, that co-location of corporate headquarters and their banks, advanced service suppliers, and other corporations is more important for some types of corporations than for others.[6]

It is also clear that some corporations have more options than others when considering the relocation of their headquarters. Headquarter mobility may be facilitated or constrained by a host of corporate attributes including the size of a corporation, its rate of growth, the industry in which it operates, the number and nature of its diversification activities and its involvement in foreign markets. For instance, because rapidly changing technologies make it advisable for top managers and their research and production units to be in frequent and close contact, the headquarters of high technology companies tend to be more firmly rooted in their productive milieus.[7]

This article makes use of a statistical model to analyze the effects of certain location and corporate organizational attributes on the probability that corporations will relocate their headquarters. The study is of interest to real estate firms for several reasons. First, commercial real estate is still primarily marketed by "cold calling" and by obtaining information on lease conditions and expiration dates. An understanding of the propensity of various types of companies to relocate their headquarters will enable real estate firms to gain a competitive advantage in the identification of potential corporate clients and to engage in more intensive rather than more extensive marketing strategies. Additionally, the methodology proposed here may be employed to ascertain patterns in the location behavior of offices within or between particular territorial areas. The methodology also may be joined with survey data to predict actual relocations, not merely to justify those that have already occurred.

Empirical Analysis

The corporate sample in this analysis consisted of the 500 largest industrial corporations in the United States in 1975, as listed in *Fortune* magazine, which remained independent in 1985, i.e., these corporations were not acquired by another firm. The dependent variable, which was in dummy form, was coded 1 if the corporation's headquarters was located in the same city in 1975 and 1985; this variable was coded 0 if the corporate headquarters was relocated to a different city. Logistic regression was employed to determine which of the organizational and location attributes were associated with the likelihood that a corporation would relocate its headquarters. Exhibit I lists the variables which were hypothesized to be associated with corporate headquarters relocation along with the means of their measurement and their data sources. Three of the independent variables that were studied—the degree of spatial dispersion of corporate facilities, the increase in industrial diversification and the number of previous relocations—were eventually dropped from the model because of the inability to obtain all necessary data. However, none was statistically significant. The results of the statistical analysis of the reduced number of variables are presented in Table 1.

The results of this analysis reveal that, despite the well-publicized departure of corporate headquarters from selected larger and older urban centers, corporations headquartered in large metropolitan areas are significantly less likely to relocate their headquarters. Although the number of headquarters located in suburbs and in Sunbelt metropolises has grown, the number of headquarters moving down the urban hierarchy has not increased. This finding suggests that the benefits accruing from the location factors and the agglomeration economies that traditionally drew headquarters to large metropolitan areas continue to outweigh those forces that facilitate their departure from these areas. Our results also show that corporate headquarters in the East North Central and Middle Atlantic regions of the country are significantly more likely to relocate than headquarters located in other regions of the country. The effect of location in these regions is above and beyond the effects of the quality of the neighborhood in which the corporation is headquartered. It simply summarizes location disincentives that are concentrated in these areas and that we have not yet measured.

The racial and socioeconomic composition of the zip code in which the headquarters is located has no effect on the likelihood that the corporation will relocate. In addition, corporations headquartered in elite residential areas with a large supply of managerial personnel are no more likely to stay than corporations headquartered elsewhere. That the percentage of Black and Hispanic residents in a headquarter's immediate vicinity is unrelated to the likelihood that the corporation will relocate fails to support the view that corporate headquarters are deserting minority neighborhoods or neighborhoods with a small concentration of residential white-collar workers. Policymakers and media figures often assert that corporations are leaving these areas due to the fear of crime, the shortage of skilled labor and the pressure from government to comply with territory-based hiring quotas. Our findings suggest that despite the social and economic ills that afflict poor and minority neighborhoods, corporations have not

EXHIBIT I

Variables Hypothesized to Affect Headquarter Relocation

Location Attributes

Population of the headquarters' metropolitan statistical area. The total 1980 population, of the MSA in which the headquarters is located was divided by 1 million.[1]

Region of the country in which the headquarters is located. Dummy variables were included for the following regions: **Northeast**: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island; **Middle-Atlantic**: New York, New Jersey, Pennsylvania, Maryland, Delaware, District of Columbia; **East North Central**: Ohio, Indiana, Illinois, Michigan, Wisconsin; **West North Central**: Minnesota, Iowa, North Dakota, South Dakota, Nebraska; **Far West**: California, Oregon, Washington. Socioeconomic composition of the zip code in which the headquarters is located. The percentage of managers and professionals residing in the same zip code in 1980 was multiplied by 1000.[1] Racial composition of the zip code in which the headquarters is located. The percentage of Black and Hispanic residents in the headquarters' zip code in 1980 was multiplied by 1000.[1]

Corporate Attributes

Sales revenue. Corporate sales revenue in 1985 was divided by 100,000.[2]

Growth in sales revenue. Corporate sales revenue in 1985 was divided by sales revenue in 1975.[2]

Increase in product diversification. The number of two digit SIC codes in which the corporation produced in 1975 was subtracted from the number of codes in which the corporation produced in 1985.[3]

Spatial dispersion of facilities. The diversification index calculates the degree of a corporation's employment dispersion across states as follows:

$$1 - [\Sigma x^2/(\Sigma x)^2]$$

with x as the number of each company's employees in each state.[4]

Size of the corporate office. The number of employees in the corporate headquarters in 1985 was divided by 100.[5]

Previous headquarter relocations. The number of times the corporation relocated its headquarters between 1960 and 1975 and between 1975 and 1985.[6]

CEO ties to the locality. This dummy variable was coded 1 if the CEO in 1975 was born in the state in which the corporation was headquartered or if the CEO resided in the same municipality as the corporate headquarters. It was coded 0 otherwise.[7]

[1] *U.S. Census data.*
[2] Fortune *magazine*
[3] Trinet Directory of Top 1500 Corporations *(1985)*, Moody's Manual of Industrial Corporations *(1975)*.
[4] Trinet Establishment Database *(1985)*.
[5] Dun's Business Rankings *(1985)*.
[6] Fortune *and* Standard and Poor's Register of Corporations.
[7] Standard and Poor's Directory of Managers and Directors.

TABLE 1

Comparison of Variables Affecting a Corporation's Propensity to Relocate Its Headquarters

Variable	Beta Value (p)
Location	
MSA population	−0.160** (.0179)
Northeast Corporation	1.167 (.1069)
Middle Atlantic Corporation	1.475** (.0255)
East North Central Corporation	1.217* (.0674)
West North Central Corporation	−0.097 (.9367)
Far West Corporation	0.442 (.6068)
Socioeconomic composition of the headquarters' neighborhood	−0.009 (.9500)
Racial composition of the headquarters' neighborhood	−.0097 (.2964)
Corporate	
Corporate size	−0.002 (.8213)
Corporate growth	0.107** (.0186)
Headquarters' size	−0.044*** (.0068)
CEO ties to the locality	−0.501 (.1358)
Model −2Log L	239.25

* Statistical significance at the .10 level on a two-tailed test.
** Statistical significance at the .05 level
*** Statistical significance at the .01 level

been more likely to move their headquarters away from such areas. Given the considerable evidence for highly localized labor markets,[8] this finding suggests that the demographics of a headquarters' immediate environment has little effect on the likelihood that it will relocate. Alternatively, the benefits of a central location exceed by a good margin the direct and indirect costs of proximity to older rundown residential neighborhoods.

Two corporate attributes are associated with the probability of corporate headquarter relocation. Corporations with a large number of employees in their headquarters are much less likely to relocate because large headquarters are more costly and disruptive to move. Also, in large headquarter complexes operational decision-making often is tightly interwoven with and dependent upon the activities of other departments and functional areas, thereby posing organizational obstacles to headquarter mobility. In a separate analysis we found that larger corporations with higher levels of foreign sales tend to have larger central offices.

In smaller headquarters' office complexes relocation is less daunting, and in smaller offices strategic decision-making frequently is done independently of other corporate activities, rendering these offices more footloose. Because they have fewer direct contacts with line and staff managers,

small corporate headquarters may be drawn to locations that are rich in advanced business services. Finally, the number of employees who would choose to resign rather than relocate is lower in corporations with small headquarters.

Companies that grew rapidly between 1975 and 1985 were significantly more likely to relocate than companies that remained the same in size or declined. Undoubtedly, many headquarters' relocations of growing companies resulted from shortfalls or inadequacies in physical facilities, a major cause of relocation.[9] It is also possible that the headquarters of rapidly growing companies required a greater amount of input from specialized labor markets, banks or other advanced service suppliers that were based outside the headquarters' locale. This situation may cause increased contracting outside the local service area or actual relocation of the headquarters itself. However, as reported earlier, corporations that diversified rapidly between 1975 and 1985 were neither more nor less likely to relocate. Apparently, these corporations were able to manage the intricacies of coordination of diversified businesses and the technological and market uncertainties associated with diversification without relocating. Hence, diversification may produce primarily an organizational response by companies rather than relocation.

Real estate folklore and the popular media long have identified CEO preferences and social ties as a determinant of office relocation. We have modest evidence that headquarter relocations are influenced by the CEO's social and familial attachment to the headquarter region. We found that headquarters located in the same city as the CEO's residence or in the state in which the CEO was born are less likely to be relocated. Although this coefficient is only marginally statistically significant in a one-tailed test, its effect may be underestimated due to CEO turnovers during the ten-year interval studied.

Conclusions

We have shown that corporations which grew rapidly between 1975 and 1985 or were headquartered in the East North Central or Middle Atlantic regions of the country were significantly more likely to relocate their headquarters. We also found that corporations with a large number of headquarter employees or corporations headquartered in larger metropolitan areas were significantly less likely to relocate. Corporations whose CEO resided in the same city as the headquarters or was born in the same state were less likely to move their headquarters. We also found that selected residential correlates of the zip code in which the headquarters was located, namely, the percentage of Black and Hispanic residents and percentage of workers employed in managerial and professional occupations, had no effect on the likelihood of relocation.

In sum, our findings show that, among large industrial corporations, headquarter relocations do not occur randomly. Rather, firms that relocate possess specific location and organizational attributes. This information may be of value to real estate firms that supply consulting and brokerage services on a local or national basis. Consulting firms may fruitfully combine our approach with corporate culture surveys in order to bring considerations of organizational effectiveness into the analysis of optimal office locations. At present, the greatest obstacle to the successful utilization of our approach lies in the relative scarcity of inexpensive, accessible and reliable data banks on the attributes of small or privately held firms. However, the rapid proliferation of less expensive, high quality computer-readable business databases should eliminate this obstacle. In an increasingly competitive, knowledge-driven and client-oriented marketplace, firms that succeed in developing broad-based expertise in office relocation may be amply rewarded for their efforts.

NOTES

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FUNDAMENTALS OF SALT DOME VALUE

Cost elements are necessary considerations in market and income analyses, even of raw salt land.

by Russell J. Avant, CRE

Is it acceptable to study a problem for 12 years and still have questions about it? In 1978, I was asked to give counsel on the proper division of an expropriation (condemnation) award on West Hackberry Salt Dome in Louisiana. The division was to be made between the mineral interest and the surface interest in 20-acres. The question was not the value, but the ratio of the division. The award already had been tendered and was considered to be acceptable, and it was being negotiated for the division of interest. However, because of the condemnation (expropriation) by the U.S. Department of Energy (DOE) for the Strategic Petroleum Reserve (SPR); some inkling had to be made of the value of the salt dome land.

In the process of determining the division, the question of dome value was raised. Arriving at the answer to that question appeared to be formidable and seemed to involve an analysis of every phase of the oil/petrochemical industry. However, formal attempts to value salt domes apparently had begun only a few years earlier, with the advent of the SPR program.

Each of several encounters with salt dome problems since 1978 has revealed more about dome value. This writing is a distillation of my experience with salt domes from 1978 through 1989. Most of the research involves the Big Hill Salt Dome taking for the DOE. But I still have questions.

Big Hill Salt Dome

The SPR program chose Big Hill Salt Dome for its final reserve site. A taking was declared in December 1982, with DOE offering $45,000 an acre. The dome is near Port Arthur, Tex., and at that time, it was owned mostly by Amoco Production Co. Amoco thought the dome was worth more than $45,000. This was understandable since in 1979, the company had sold 100-acres of the dome for $100,000 an acre.

My role as one of two counselors was to evaluate the offer, recommend a counteroffer and a range within which to negotiate. I and the other counselor were to work independently but we were to pool the data gathered. Our data shopping list included uses of caverns, sales, rents, national and local pipeline maps, books, studies, existing and proposed caverns, growth of caverns, operating statements of caverns, production and pricing of oil, petrochemicals, gas, liquid petroleum gas (LPG), demand, transportation, geology, etc. etc...

The DOE provided geological studies on the subject project. And Amoco had lots of information, of course, on dome geology, production, refining, petrochemicals, pipelines, storage, shipping, marketing and cavern construction and operation, much of

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which was available to us. However, in order to obtain sensitive information, we needed to agree to confidentiality; death was the penalty if any of this information were to be revealed within 5 years! The accumulated documents eventually grew to weigh over 100 pounds. Just reading and organizing them took a bit of time.

In the management of the study, I retained a chemical engineer to answer questions, make cost estimates, collect storage rents and advise on technical petroleum matters. Fenix and Scisson, Inc., a mining and engineering firm was hired to advise on cavern development. Their man, Al Medley, had encyclopedic knowledge of mining, geology and salt domes. He had worked on many cavern projects and seemed to know every storage operation. He had written several papers for his professional society and furnished these as well as other studies.

The data search, including interviews with principals, brokers, experts and operators, took much time. The subject was complex, and close study had to be given to each aspect. Sales figures, for instance, had to be checked with several sources. After the interviews, the writeups were checked by the interviewees. In several cases, significant differences were found in data obtained from different sources; significant differences also were found between later interpretations of facts and information as it was first understood.

The counseling problem involved the collection of masses of hard-to-earn data. After months of processing this data, however, general conclusions did emerge. Defining fundamental concepts in advance helped the search, the processing and the explanation of the data. This article is background which, hopefully, may give direction to those who are organizing a counseling study.

Salt Storage Background

Dome storage is involved with the production, processing, refining, transportation and marketing phases of the oil/petrochemical industry.

Salt cavern storage is a new technology which has become an integral part of this industry. Although other uses of salt cavern storage are developing, oil/petrochemical industry uses dominate.

The following paragraphs are offered as background on salt domes, their geology, characteristics and uses and their importance to industry.

Geology

The geology of domes is amazing. Think of it, a salt bed runs 30,000 feet down into the ground. The salt bed is lighter than the soil that covers it. Under pressure, it becomes a slow moving liquid which extrudes in columns to the surface, like a thick oil rising through water. The tops of the columns are what we know as salt domes. There are hundreds along the Gulf Coast, but domes are found in other places as well. The domes usually are associated with oil production, and the shallow ones are useful for storage.

Salt Characteristics

Salt has intrinsic value for many uses. It is an essential commodity for human consumption and as a preservative. It is in industrial demand as a source of sodium and chlorine for refrigeration, deicing highways and other uses. At one time, salt was scarce and was used as money. This is no longer the case as bedded or dome salt has been found in quantities measured in cubic miles.

The highest uses of salt land are for brining, mining and storage. The best use of many salt domes is for underground storage. This is owing to the characteristics of salt. These are:

- water solubility, which permits low-cost solution mining.
- high strength, which permits large caverns and pressure containment.
- plasticity, which permits the equalization of stresses through broad ranges of pressure and enables self-healing of fractures that arise from excessive pressure.
- non-reactivity, which means salt is insoluble in hydrocarbons and does not chemically react with many materials.

Development Of Salt Storage Technology

Mining of salt has been done for centuries, but solution mining is recent. The earliest solution mining proposal found on record is in a patent issued to George Smith in 1880.

The use of salt domes for storage is more recent. It began in the United States in the early 1950s. Although R.L. Pattison applied for a patent in 1945, the patent was not granted until 1952, and it was assigned to Sid W. Richardson in 1954. The first recorded use of a salt cavity for storage was by D.C. Stewart in Hutchinson County, Kansas, in 1948 for storing propane; the second was in Winkler County, Texas, in 1950.

Salt land may be used to store solids, such as hazardous wastes for isolation from the environment, liquids and gases, including compressed air for power reserve. Storage of hydrocarbons and large volumes of pressurized liquids and gases is the most common use. Employment of this technology likely will expand. Future uses should include the storage of compressed air for power generation, hazardous wastes, natural gas and other materials.

Growth Of Dome Storage

The use of salt domes for storage has grown steadily since 1950. According to the Gas Processors Association, the cavern capacity in the United States has grown from 106 million barrels in 1965 to 521 million in 1982; this is a compounding annual growth of 9.81%. In 1981 and 1982, U.S. salt cavern capacity increased 16.85%, for a rate of 8.43% a year. Over half (52.6%) of the storage is in Texas, next is Louisiana with 19.29% and Kansas with 14.82%.

Because it has a large concentration of refineries and petrochemical plants combined with many shallow salt domes, Texas has accounted for 85.93% of the growth of salt caverns in the United States.

For 1981 and 1982, storage in Texas increased from 208 million to 274 million barrels, a 66 million barrel increase. This is 31.84% for two years, or 15.92% a year. Continuing at that same rate of increase, Texas should see an additional 44-million-barrel-a-year demand from industry. Considering that the Sabine Pass Terminal had initial plans for storing 15 million barrels at Big Hill, the SPR program alone should exceed this growth rate.

The Economics Of Salt Storage

There are several advantages to salt storage which will provide some understanding of the reasons for its growth. These are:

- The cost of construction. Costs for developing a salt storage facility can be much less than the cost of building any other type of storage facility, depending on the volume, design requirements and proximity to the storer's needs.
- The nature of the cavern. A salt cavern is a pressure container; so large volumes of material can be stored at pressures that may not be feasible to obtain or maintain in other methods of storage. Mined caverns also maintain constant humidity.
- The protection they afford. Environmental problems associated with the storage of hazardous materials can be reduced. Exposure of stored materials to natural and man-designed hazards such as war also are much reduced.
- The longevity. Salt caverns have indefinite lifespans if they are properly maintained.

There are, however, three problems that need to be solved. Salt storage requires a water supply and a brine disposal method, metering in and out rather than more accurate tank gauge metering and a drying process when withdrawing certain products. Salt domes also may not be within practical reach of those who need them, and they may not be practical for small volume storage.

The Distance Question

The underlying economics of salt storage are realized mainly in the lower costs of their construction and maintenance and their ability to hold pressure. The cost of the container is not the full picture, however. The distance between the salt storage facility and those who need it is a major value question, because pipeline runs are needed to bridge that distance and costs depend on their length, size and the terrain they cover. Thus, one of the comparative measures of domes is the difference in cost of pipelines connecting the users.

The needs for storage are normally found at one or more of the following:

- pipeline corridors that serve markets and production centers
- refineries and petrochemical plants
- shipping channels

The question arises as to what is a practical distance. When distances from the users were checked for 20 storage operations in Texas and Louisiana, they ranged from 1 to 70 miles, with an average of 23.5 miles and a mode at 18 to 25 miles.

Cost Comparisons

The cost comparisons in Table 1 show why the demand for salt cavern storage has been growing. For pressure storage, the cost difference is dramatic and justifies long runs of pipes. Also for pressure storage, the cost of surface cryogenic or pressure storage is so high that it is often considered to be impractical. Until the development of salt cavern storage, most LPG was flared.

TABLE 1

Relative Costs of Storage Containers (1982—1983)

Volume (in barrels)	Salt Dome Caverns (Cost/ Barrel)	Pressure Tanks (Cost/ Barrel)	Oil Tanks (Cost/ Barrel)
100,000	$10.00	$40 to $120	$6.92
200,000	5.00	40 to 120	5.52
400,000	2.50	40 to 120	4.23
500,000	2.01	40 to 120	4.09
1,000,000	1.22	40 to 120	4.09
2,000,000	.57	40 to 120	4.09
3,000,000	.42	40 to 120	4.09

Note: These costs do not include pipelines to the site, brine injection wells or a brine pit. Injection into the cap rock is very low cost: deep well disposal is between $700,000 and $1 million.
The costs include a one-mile, eight-inch pipeline to the injection well for a one-well cavern. The costs can vary upward if fast leaching, fast rate of product withdrawal, operating brine needs and other factors are included.

Products that do not require pressure containment, such as crude oil, fuel oil, gasoline and others, can be stored at low cost in volumes exceeding 200,000 barrels. Crude is usually refined as it arrives, and it requires storage only of surge needs. Natural gas, fuel oil, LPG and gasoline, however, have seasonal demands and require large-volume, off-season storage.

Industry has not been interested in speculative storage. Apparently, only the federal government needs to provide an emergency supply of oil in case of an oil embargo. The SPR program proposes a reserve that would exceed the industry total.

The SPR cost for storage is higher than the costs that are common to industry. The reason is the higher rate of recovery that is required. SPR requires two wells for each cavern, a high rate of water supply, brine disposal and large pipelines. The Louisiana Offshore Oil Port (LOOP), for example, has five wells per cavern to handle the high-volume delivery and recovery requirements.

Incompatible Uses

The delicate aspect of cavern development is running the pipe string into the cavern. Where sulphur mining has been done in the cap rock, subsidence is expected, and it can rupture the pipe string.

If the integrity of a pipe string is lost, any commodity that has been stored under pressure may be lost. Contamination of the environment is a potential liability. For these reasons, the development of domes that have increased risks is avoided, and threatened caverns usually are abandoned if loss of the stored products would cost more than the creation or maintenance of the cavern.

Uninformed Sellers

Market value is the highest price the property will bring under four conditions:

1. Buyer and seller are free of undue stimulus.
2. Both parties are well-informed, and each is acting prudently in his own best interest.
3. A reasonable time is allotted to test the market.
4. Payment is made in cash or its equivalent, or third-party financing is available.

Many industry land purchases do not meet all of these conditions, particularly the condition that requires both parties to be well-informed.

This condition may be met when an industry buys a farm on which it plans to build a plant. There may be miles of farmland that would qualify as an equal substitute for any site. Even though farmers have no knowledge of the value of industrial land, they compete for the sale with their knowledge of the farm market.

With salt domes, however, scarcity is a major factor. Substitution of equal property is not accomplished easily, and the best use of the property probably involves more than farming. Knowledge of the supporting economics of salt dome property usually lies only with members of the industry.

To be informed, a seller should know the significance of the:

- depth of the salt
- quality of the salt
- proximity of the dome to
  - pipelines
  - deep water channels
  - refineries and chemical plants
  - markets
- mineral production in cap rock
- proven quality of domes
- water source and brine disposal locations
- cost of alternative methods of storage
- rental value and underlying economics of the caverns
- market comparables and competitive offerings
- identifying the buyer

These items of information usually are beyond the ken of farmers or most other owners of a dome. In small areas that have a long history of competitive demand, however, evidence has been found that a few non-industry sellers do become knowledgeable.

That some sales do not meet the definition of market value is believed to be true on the basis of (1) the fact that prices for some salt domes are so much lower than prices for other salt land; this implies a lack of knowledge of supporting economics; and (2) the knowledge of the circumstances surrounding some of these sales.

Examples include Barbers Hill, where recent sales and rejected offers to purchase ranged from $137,500 to $272,000 an acre; and Big Hill which sold for $100,000 an acre in 1979. These prices contrast sharply with early sales on Barbers Hill, one sale on Moss Bluff Dome, one sale on North Dayton Dome and one sale on West Hackberry Dome, and they appear to be the result of the lack of knowledge of the sellers. One sale on West Hackberry Dome for $3,429 an acre did, however, involve undue stimulus. This became apparent when the price of the dome was compared to the rental costs of $65,000 an acre in a lease between Olin and others members of the family in their settlement with the SPR shortly after this sale.

Oil/Chemical Industry Land Economics

Oil industry affairs are technical and complicated, and persons outside of the industry seldom have a grasp of the technology or the economics of oil or chemical plants.

When the best use of dome land is for salt cavern storage, the oil/petrochemical industry demand predominates. This predominance is due mainly from growth of LPG use in petrochemicals and fuels. LPG comes from oil and gas production and from refining. Until dome storage was developed, most LPG was flared. Knowledgeable people advise that much of the petrochemical industry is viable only because of dome storage.

Capital Requirements

The capital requirements for refineries and chemical plants are large. Plant costs may range from hundreds of millions to billions of dollars. Such numbers are nearly incomprehensible until they are reduced to the unit cost of production. A refinery with 500,000 barrels a day throughput may cost $1 billion. The cost can be expressed in a comprehensible number as $2,000 a barrel of capacity.

The capital outlays for refineries and chemical plants are so large that the cost of a site is often a fraction of a decimal point. In the Sabine Triangle, the site value is usually less than 1%; yet 1% is less than the range of accuracy of estimating the cost of the plant.

For example, an Olefin plant recently was constructed on 100-acres. Prior to construction, the cost was estimated to be $300 million. It was understood that the cost on completion of the plant was closer to $400 million. The value of the site from comparable sales would have approximated $10,000 an acre and totaled approximately $1 million, only ¼ of 1% of the cost of the plant.

Even at 1% of $400 million, or $40,000 an acre, the land value still would not have been significant. This is more than any 100-acre tract has sold for in the Sabine Triangle, with one exception. This is 100-acres of the Big Hill Dome, which were sold at $100,000 an acre. On the more active Barbers Hill Dome, cash offers by major corporations of $200,000 and $272,000 an acre have been rejected by the owners.

The value of industrial land usually is set by the prices that would be paid for more frequently occurring lesser uses. This does not mean the sites are unimportant but that the land is available at such prices. When industry locates in farming areas, it pays farm prices; when it locates in residential areas, it pays residential prices, and so on. Industry pays only enough to displace developers of other land uses. It does not pay more because more is not asked, because substitutions can be made easily and because sellers are not well-informed about the industrial values of their sites.

Questions of the availability and cost of transportation, fuels, water, feedstocks, labor, markets, politics and other factors relegate the cost of land to minor importance in the consideration of plant location.

If for some reason the land is not available in the best location, then higher costs or the loss of efficiency can be extreme in relation to typical land values. If land is scarce, however, the prices of land will rise to the point of acquisition.

The only places that industrial land values tend to approach economic limits is when land is scarce. This occurs when industry competes with industry or with a developer of an equally high use of land. In the Sabine Triangle, the only times industry competes with industry are: (1) along the ship channels and (2) on the salt domes. Even so, sales sometimes reflect little, if any, of the supportable industrial value.

The general conclusions that can be drawn from an analysis of oil/chemical industry land economics are:

1. Storage is an essential and integral part of the oil/petrochemical industry.
2. Salt caverns offer the lowest cost and greatest safety for storage of large volumes of liquids and gases.
3. Land cost is seldom a significant part of the investment that is required for oil and petrochemical plants. Land prices usually are set by other, lower uses.
4. Land values push economic limits only when land is scarce and industry competes with industry.
5. Grantors are seldom fully informed about the economic value of their land to industry except in areas of intense competition.

Units Of Comparison

The land value of salt domes can be compared on the basis of distance factors, storage per acre and tract size.

Distance Factors

The cost of storage is not simply the cost of the cavern but the total cost of the storage system. The need for storage stems from plants, transmission pipelines to markets and from production centers and shipping terminals.

The distance between a dome and a plant, a transmission pipeline and a terminal affects the value of land in an inverse relationship to pipeline costs. An apt analogy is a bucket of money that is budgeted to purchase a storage facility: the more paid out to the construction of pipelines, the less that can be paid for land. This is a simplified, working principle. More money left by reason of low pipeline cost accrues to land value. Insufficient amounts of money left by reason of high pipeline costs requires an alternative to be sought.

Within an area of 45 miles, salt dome storage seems to be a winning method. To relate sales and other data to the subject, it is necessary to develop reasonable estimates of (1) the most frequent number of barrels needed per acre; (2) the usual tract size for storage projects; and (3) the usual need for pipelines in terms of size and number.

Storage Per Acre

As to the number of barrels stored per acre, examples can be found ranging from 50,000 to around 600,000 barrels per acre. The physical capability of most salt domes is over 1 million barrels per acre.

For light hydrocarbon storage, however, the practical sizes of caverns allow storage of 1 million to 3 million barrels. With spacing, this means 200,000 to 400,000 barrels per acre or 300,000 barrels of light hydrocarbons stored per acre on the average.

Larger caverns have lower storage costs per barrel than smaller caverns; however, there is a practical size limit due to the need to separate stored products. Multiple caverns, therefore, are the norm, with more land put into spacing. Enlargement of caverns is low in cost and easy to accomplish. Caverns are enlarged simply by using fresh water instead of brine for removing products, and this can be done as spacing permits. Washing to permit communication between one cavern and another means that two caverns become one and only one product can be stored thereafter.

Examples of large numbers of barrels stored per acre are found often. On Barbers Hill, the Xral facility stored 20 million barrels on 45-acres, or 444,000 barrels per acre. At Big Hill, the SPR plans to store 140 million barrels on 254-acres for a rate of 550,000 barrels per acre. The intensity is higher at the LOOP in Clovelly, Louisiana. However, a relatively common intensity for light hydrocarbon storage is around 300,000 barrels per acre. Thus, 300,000 barrels per acre should be an acceptable norm to consider when converting the costs, rents and value per barrel to the value per acre.

Typical Tract Size

In projecting typical site and pipeline needs, a standard 100-acres is used as mid-range. This is the size of a tract that was bought recently for one project. Most comparable sales have been related to all three storage system needs, i.e., pipelines corridors, plants and ship channels. Typical pipeline requirements also must be selected in counseling on domes.

Summary

The norms used to relate costs, rents and values to land for 1982 were as follows:

- Intensity of storage was 300,000 barrels per acre.
- Site size was 100-acres more or less.
- Pipelines were needed for 100-acres of storage development: two 12-inch lines were needed to connect the dome with the industry center; one 15-inch and one 20-inch line were needed to connect with the pipeline corridor; two 24-inch lines were needed to connect with the shipping channel.

These norms vary by time and location, but they were deemed to be reasonable for the 1981 to 1985 period in the area from Houston to the Sabine Triangle, which includes Port Arthur, Beaumont and Orange, Texas, on the Gulf Coast.

As a result of the analysis of the data from which these fundamental concepts were drawn, it was recommended that the offer of $45,000 per acre should not be accepted. Ultimately, the settlement was over twice the initial offer.

CRE's VIEWPOINT

Moses Where Are You?

by Bruce P. Hayden, CRE

Market value recently was redefined by federal law, and this redefinition makes it appear that we may be headed into an uncharted wildnerness. This treatise will not attempt to provide any charts for the new territory, but it will identify some of the issues that need to be considered in preparing such material.

Evolutionary and revolutionary changes brought about by well-discussed problems in financial institutions, have resulted in the enactment by the U.S. Congress of the Financial Institutions Reform, Recovery and Enforcement Act of 1989, commonly referred to as FIRREA. This act, in turn, has brought about a redefinition of "market value" as it has long been defined by the American Institute of Real Estate Appraisers and the Society of Real Estate Appraisers in *The Dictionary of Real Estate Appraisal* (1984 edition). The redefinition—which was made by the Federal Reserve Board and agreed to by the Federal Deposit Insurance Corporation (FDIC), Resolution Trust Corporation (RTC), Office of the Comptroller of the Currency (OCC) and Office of Thrift Supervision (OTS)—became mandatory for federally regulated lenders on September 19, 1990. Adopted almost verbatim was the definition recommended by The Appraisal Foundation in *Uniform Standards of Professional Appraisal Practice,* 1990 (USPAP), which will be quoted later in this discussion. This redefinition, as yet, has neither been thoroughly tested nor accepted by the appraisal industry for uses other than those for which it is mandated. It raises issues concerning:

- appraisal procedures, which may change in the light of USPAP and the use of new definitions mandated by the Federal Reserve Board for all federally regulated financial institutions;
- legality, which may be in question particularly with regard to the state and federal courts' willingness to accept the Federal Reserve Board's mandate and to apply these standards to non-regulated transactions;
- liability of appraisers, counselors, investment advisors—and their insurers—which may arise because of "competency provisions" in USPAP;
- licensing of appraisers, wherein each state will be required to set up new commissions that are totally divorced from existing banking and real estate commissions and on which anyone connected with an affected industry will be ineligible to serve.

All of these will have to be addressed in the light of a national political and economic situation that—for the few real estate practitioners active today who experienced the Great Depression of 1929-1942—more and more appears to be "deja vu all over again," in Yogi Berra language. As to these major changes, a look back to 1930 may be useful.

Remember When. . .

The Roaring Twenties were a period of great prosperity. People were rich who never expected to be, and the living was easy. Laws were treated with contempt; banks were flush with money; stocks were at all-time peaks; happenings in Wall Street were more significant and attention-getting than those in Washington, DC. "The sky was the limit."

Beginning with the stock market crash in late 1929, an erosion of public confidence turned into a tidal wave of economic collapse; most of the nation's commercial and savings banks and building and loan societies went under; major companies disappeared forever; millions of people became unemployed; bread lines proliferated. "Brother, Can You Spare A Dime" became the hit song of the early 1930s.

The Great Depression brought about a great political revolution. Hapless Herbert Hoover and the Republican House and Senate were replaced by Franklin Delano Roosevelt, the New Deal and the Democrats. Yet the more things changed, the more they stayed the same.

For real estate, the Thirties were a period of total disaster. The market for single family homes went sour: the $5,000 "3 BR—1 B" home of 1929 went for $1,500 fewer than ten years later... if one could find a buyer. Loans on apartment buildings were foreclosed by lenders, many of whom proved to be less able managers than the buildings' developer-owners. Store properties, whether on Main Street or in small neighborhoods, stood vacant. Like the new skyscrapers in New York and Chicago, the 12-story new buildings in Flint, Toledo and Omaha were closed.

Worldwide depression ruled. With it came political revolution in Germany; Labour governments in Britain and many other countries; Hitler and

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Mussolini; and the relegation to the political minor leagues of Winston Churchill. In the Far East, Japan prospered, overran Manchuria, parts of China and many of the Pacific Islands, and dreamed of world dominance. Although Europe, with the exception of Britain, had substantially recovered by the mid-1930s, things improved only slightly in America, despite Herculean efforts and revolutionary changes effected by FDR and the Depression-era Congress. It was the start of World War II in 1939 and America's resulting war preparedness drive that finally brought the Great Depression to its end.

What Has Changed?

Are we faced with similar prospects for the 1990s? Although 1930 and 1990 do have many similarities, in many respects, the United States is less well off today than it was in the 1930s because of such problems as:

- drug addiction and a resulting increase in major crimes;
- tense interracial relationships despite much progress toward racial equality;
- badly eroded national educational standards and achievements;
- deeply troubled financial institutions;
- an astronomical national debt;
- increasing competition with Germany and Japan for industrial leadership.

What does all this have to do with us and our clients for real estate counseling, real estate appraising, registered investment advisory services, tax assessments—and how our state and federal courts will judge these problems? EVERYTHING.

Our current political, economic and other problems affect the major conditions that prevail in the real estate marketplace and the way in which real estate is assessed and financed.

It is widely recognized today that the appraisal process for determining market value is not working well because conditions in the U.S. economy and in the world of real estate have nullified a number of the major assumptions inherent in that process as established by the American Institute of Real Estate Appraisers and the Society of Real Estate Appraisers. USPAP standards help, but they do not solve the problems.

In fact, one of the East's leading appraisers, Edward F. Heberger, CRE, MAI, said recently:

> The appraiser today is faced with the job of determining "market value"—when there is, in reality, no market value as we have known it. There are two values today: "Investment value" for the property that is of interest to the major pension and endowment funds, and other institutional investors. This type of property can still be appraised by the three-approach technique, but with much the heaviest weight assigned to the discounted cash flow or net present value approach. For the non-institutional type property, the only value is "market price"—which today equates to "liquidation value". This value can be only approached by analysis of recent sales, if any, of similar properties.

Furthermore, a recent communique released by a major New England bank about its commingled real estate fund, states:

> It has been the fund's practice to appraise each property annually...by appraisers carefully selected by the bank who are qualified as members of the Appraisal Institute. Values submitted are then reviewed by a Valuation Committee composed of two outside consultants and a senior officer of the bank.
>
> This process has been appropriate in the past; recently, however, falling rents, the unavailability of financing and the withdrawal of buyers have resulted in uncertainty in the appraisal process.

To pursue further the problems and difficulties in making the appraisal process work, let us review the Proposed Regulation on Uniform Appraisal Standards promulgated by the Federal Reserve Board and published in the *Federal Register* (Vol. 55, No. 36, February 22, 1990). These standards require that all appraisals be written and that they conform to the USPAP. The Federal Reserve Board regulation adopts the definition of market value as prescribed by USPAP:

> Market value means the most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus. Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:
>
> 1. Buyer and seller are typically motivated;
> 2. Both parties are well informed or well advised, and each acting in what he or she considers his or her own best interest;
> 3. A reasonable time is allowed for exposure in the open market;
> 4. Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
> 5. The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

As to each of the above, I believe questions can and should be asked, in the light of prevailing conditions:

1. Is it reasonable to assume that most buyers and sellers today are "typically motivated"? Is the financial institution, under great regulatory pressure to "clean up its non-performing loan portfolio," typically motivated? Is the "bottom fisher" purchaser or the owner-seller typically motivated who is unable to pay his debt service, but is still trying to salvage something?
2. The "best interest" for either buyer or seller may be survival.
3. For a high percentage of sales today, there is no such thing as an open market.
4. With either buyer or seller or both under extreme pressure, "financial arrangements" are all over the map, depending on who is being pressed the hardest.
5. In most markets today and for most properties, the term "normal consideration" simply does not apply. If a deal is to be made, it is most apt to be done with concessions or special or creative financing.

How then will the appraiser respond to his assignment as expressed in an engagement letter which necessarily and properly requires the appraiser to do his work by USPAP standards?

What of the legal issues involved? How will 50 state court systems and the federal courts rule in the future—particularly on appraisal, counseling or investment advisory cases that do not involve questions affecting the Federal Reserve Board, RTC, FDIC, OCC, OTS or other regulatory agencies?

Will all courts readily accept the Federal Reserve Board-USPAP definition of market value—whether or not conditions are such that market value, as defined, can be readily determined? Will the 1984 AIREA-SREA definition of market value be abandoned? If not, will opposing counsel select and argue for a definition of market value which best suits the case?

If, in fact, conditions are such that neither definition of market value will be applied consistently, how will a court proceed? How much leeway will opposing counsel have in arguing a case?

When the ill-defined term "investment value" is most appropriate to the circumstances, will any court accept it? Must each court make its own definition of this term and reach its own decision?

What added liability, if any, falls upon appraisers, investment advisors, real estate counselors? How is it measured? Can it be insured against? Will recommendations that are made in good faith in 1990 be judged with 20/20 hindsight in 1997, when achieved results may be far short of the results projected in the recommendations? In a recent case involving an action brought by a federal agency against a prominent appraiser, a federal court ruled that "clairvoyance is not one of an appraiser's duties"; the regulatory agency involved appealed the decision.

What liability questions may be raised by the fact that USPAP, for the first time, formally raises the question of "appraiser competency"?

The competency procedure as specified in Chapter I of USPAP requires that, prior to acceptance of an assignment, the appraiser must identify the problem to be addressed and possess the knowledge and experience needed to perform the assignment competently. The comment section states that "the background and experience of appraisers varies widely, and a lack of knowledge or experience can lead to inaccurate or inappropriate appraisal practice." In this connection, it is interesting to note that *The Appraisal of Real Estate* (8th edition, American Institute of Real Estate Appraisers) does not index the word "competency." Perhaps the institute assumes that any MAI can appraise competently any type of real estate and any single one of the many rights in the "bundle of rights" which together constitute real property.

Whatever original assumptions were made concerning competency, the fact that it is being required for an appraiser, in effect, to certify his competence—and the fact that 28 lines of small type in the USPAP comment section discuss the competency provision—appear to open up a new area for legal challenge.

What *licensing* and certification problems may be inherent in the Federal Reserve Board's regulations implementing the conditions of Title XI of FIRREA? According to Title XI, all states will be required to implement a licensing, certification and supervisory mechanism for avoiding even potential conflicts of interest. This mechanism must be established through appraisal regulatory functions that are independent of any other real estate regulatory function. Preferably, this totally independent agency will be answerable only to the state's governor or a member of his cabinet, and it will promote the independence of the appraisal regulatory function, reduce conflicts of interest and address [read "prevent"] the grandfathering and dual licensing of appraisers...to provide maximum insulation for the agency from influences of any industry or organization whose members have a direct or indirect financial interest in the outcome of the agency's decision (hereinafter "affected industry").

It seems likely that anyone who is active in any phase of the real estate business, including counseling or financing, will be engaged in an "affected industry." It should be interesting to see how these new licensing boards and commissions will be established and how they will work, if all who have knowledge and pertinent experience will be precluded from serving on them.

With major changes in appraisal definitions, regulations, legal processes, competency requirements, liability risks and certification and licensing procedures and with storm signals flying for the economy, we are finding ourselves on the edge of the wildnerness; we are steadily moving more deeply into it; no one is able at the present time to chart the course through the wilderness.

Moses, where are you?

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