

IDENTIFYING PRAGMATIC ALLOCATION STRATEGIES  
FOR PENSION PLAN REAL ESTATE INVESTMENT

by

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Bachelor of Science  
University of Arizona  
1984

SUBMITTED TO THE DEPARTMENT OF URBAN STUDIES & PLANNING  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE  
MASTER OF SCIENCE IN REAL ESTATE DEVELOPMENT AT THE  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SEPTEMBER 1990

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Submitted to the Department of Urban Studies & Planning on  
July 5, 1990 in partial fulfillment of the requirements for  
the Degree of Master of Science in Real Estate Development at  
the Massachusetts Institute of Technology

**ABSTRACT**

The purpose of this paper is to create a general framework that a pension plan sponsor can utilize to determine pragmatic allocation strategies for real estate investment. The framework is created using a combination of the principles of Modern Portfolio Theory (MPT), an analysis of various factors that influence plan strategy and conventional wisdom from the real estate industry.

This paper describes the historical perspective of pension plan real estate investment, the evolution of MPT, barriers to implementation of MPT to real estate and data currently available. It also discusses the various factors of influence on a plan's real estate strategy and considers the likely evolution of pension plan real estate investment. Finally, a framework is presented that, incorporating the factors of influence, will help a plan sponsor to rationalize the decision of identifying pragmatic allocation strategies.

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## ACKNOWLEDGEMENTS

For Debi, my constant source of inspiration

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## CHAPTER I: Introduction

The purpose of this paper is to create a general framework that a pension plan sponsor can utilize to determine pragmatic allocation strategies for real estate investment. The framework is created using a combination of the principles of Modern Portfolio Theory (MPT), an analysis of various factors that influence plan strategy and conventional wisdom from the real estate industry.

Large pension plans were drawn into the world of real estate in the 1980's because of the perceived opportunity for lucrative returns and diversification benefits. The continued growth in employee contributions and in targeted real estate allocations may lead to marked increases in plan real estate investment over the next decade. The impact of even small percentage increases in plan allocations to real estate would be substantial. The U.S. Department of Labor estimates plan assets to be approximately \$2.6 trillion. At this level, even a 1% additional allocation to real estate would expand existing plan holdings by approximately 25% or \$26 billion. This would be the equivalent of purchasing a \$500 million property in every state in the U.S. This \$26 billion investment would expand the existing pension real estate pool by more than 25%.

Over the last several decades, investors in securities have implemented sophisticated investment techniques for diversification, based largely on a body of academic literature. In contrast, investors have for years considered

real estate on a deal by deal basis, using negotiation skills rather than quantitative portfolio approaches for achieving diversification. In the last five years, however, both practitioners and academics have begun to attempt the application of Modern Portfolio Theory (MPT) logic to real estate investment. Much of the current discussion in the industry centers around the tension between the "bottom-up," deal driven approach and the "top-down," portfolio driven approach.

The pension plan sponsor's fiduciary duty has been interpreted to include acting as a "prudent expert" in investment strategy (4). Considering this duty in the face of waning returns in their real estate portfolios, many plans have begun to recognize the need to institute sophisticated diversification strategies similar to those used in securities investment. These strategies have the potential to protect existing allocations and to increase future allocations to real estate.

Theory and practice for achieving and maintaining an efficient portfolio are still evolving. Investors must choose from among classifications offering different "units of diversification" as well as from among various investment vehicles. These units of diversification include markets segmented by location, economic area, lease duration and property type. The primary investment vehicles used by plans include open and closed-end commingled real estate funds (CREFs), separate accounts, direct investments and REITs.

Only the largest pension plans in the country generally have in-house staff to manage real estate assets and make allocation decisions. Most plans rely on investment advisors that act as real estate money managers. These advisors acquire, manage and dispose of real property for plans, and often make many allocation decisions. Many plans have also come to rely on consultants to select, screen and evaluate the relative performance of advisors. However, neither advisors or consultants have been used to create overall real estate investment strategies; they are typically utilized to make specific allocation decisions.

The current activities of several large plan sponsors and investment advisors imply that the strategy for diversification will differ depending on a variety of influencing factors. These factors include portfolio objectives, management characteristics, the type of plan, the size of the real estate allocation, various asset characteristics, plan objectives, plan size, the political and social environment, and regulatory oversight. The relationship between the size of a plan and certain characteristics of real estate investment vehicles is an important determinant of strategy. The divisibility of a particular investment vehicle will influence the ability of plans of different sizes to implement certain strategies. The framework created in this paper looks at this relationship in concert with the other factors to identify allocation strategies for plans of \$50 million to \$20 billion in assets.



In general, the investment options suggested in the framework and analysis of strategies are intuitive; more strategies are available to large plans with sizeable real estate allocations. However, the framework quantifies the size that a plan must achieve before various strategies are available. It is interesting to note that many strategies frequently discussed in the literature will only be available to the largest plans in the U.S.

Chapter Two of this paper considers the historical perspective of pension plan real estate investment, the evolution of MPT, barriers to implementation of MPT to real estate, and data currently available. Chapter Three discusses the various factors of influence on a plan's real estate strategy and considers the likely evolution of pension plan real estate investment. Chapter Four presents a framework that, incorporating the factors of influence from Chapter Three, will help a plan sponsor to rationalize the decision of identifying pragmatic allocation strategies. Finally, Chapter Five provides conclusions from the various analyses performed.

## CHAPTER II: Historical Perspective

### PENSION PLAN REAL ESTATE INVESTMENT

Pension plan real estate investment has not moved forward with a distinct strategy. In the instance of most plans, it has just evolved. Plans have joined large commingled funds to bring real estate into their portfolio. These funds typically require initial investments ranging from \$1-\$100 million. Many plans decide to take on additional risk for a higher return on their investment. Funds specializing in particular property types and geographic areas, with varying forms of financial and leasing risk are often the plan's first foray into riskier forms of real estate. The larger plans may subsequently develop their own real estate staff and invest directly, searching for even higher risk-adjusted levels of return.

Regardless of size, most major plans prefer to allocate across advisors, attempting to diversify by judgement and style. Often, real consultants are utilized to make these allocation decisions. Unfortunately, this and other methods of allocation often amount to no more than "naive diversification." Plans do not usually consider the correlation of investment returns either within real estate or with the balance of the plan's portfolio. In defense of these investors, they are usually making use of the limited tools of analysis that are available. However, recent papers present compelling evidence for more sophisticated methods

that raise questions about the level of diversification of existing portfolios.

### MPT EVOLUTION

The application of Modern Portfolio Theory (MPT) to real estate has been a topic of discussion for the last ten years. The central argument surrounds the ability to apply the quantitative techniques, which for years have dominated the securities market, to the very different world of real estate (3). Even some of the top investment advisory firms in the industry cater to "deal people," more comfortable with making decisions on a transaction level, than with analyzing portfolio ramifications of individual investments. These strategies may continue to dominate the private development community. However, unsophisticated mechanisms for evaluating portfolio risk are in conflict with the fiduciary duties required of pension plan sponsors. This fact is magnified by recent studies by Hartzell, Hekman and Miles (12) and Hartzell, Shulman and Wurtzebach (13) that present convincing evidence in support of improved methods of real estate diversification. Additionally, some prominent pension plans and advisory firms including the Prudential Realty Group, Equitable Real Estate, Aldrich, Eastman and Waltch, and the RREEF Funds, have actually begun to implement MPT techniques to their portfolios (15).

At the heart of MPT is the goal of achieving the highest return on investment for a given level of risk (7). However,

risk is often difficult to assess; this is particularly true in the case of real estate investment. Risk is defined as the variability of the return on an investment.

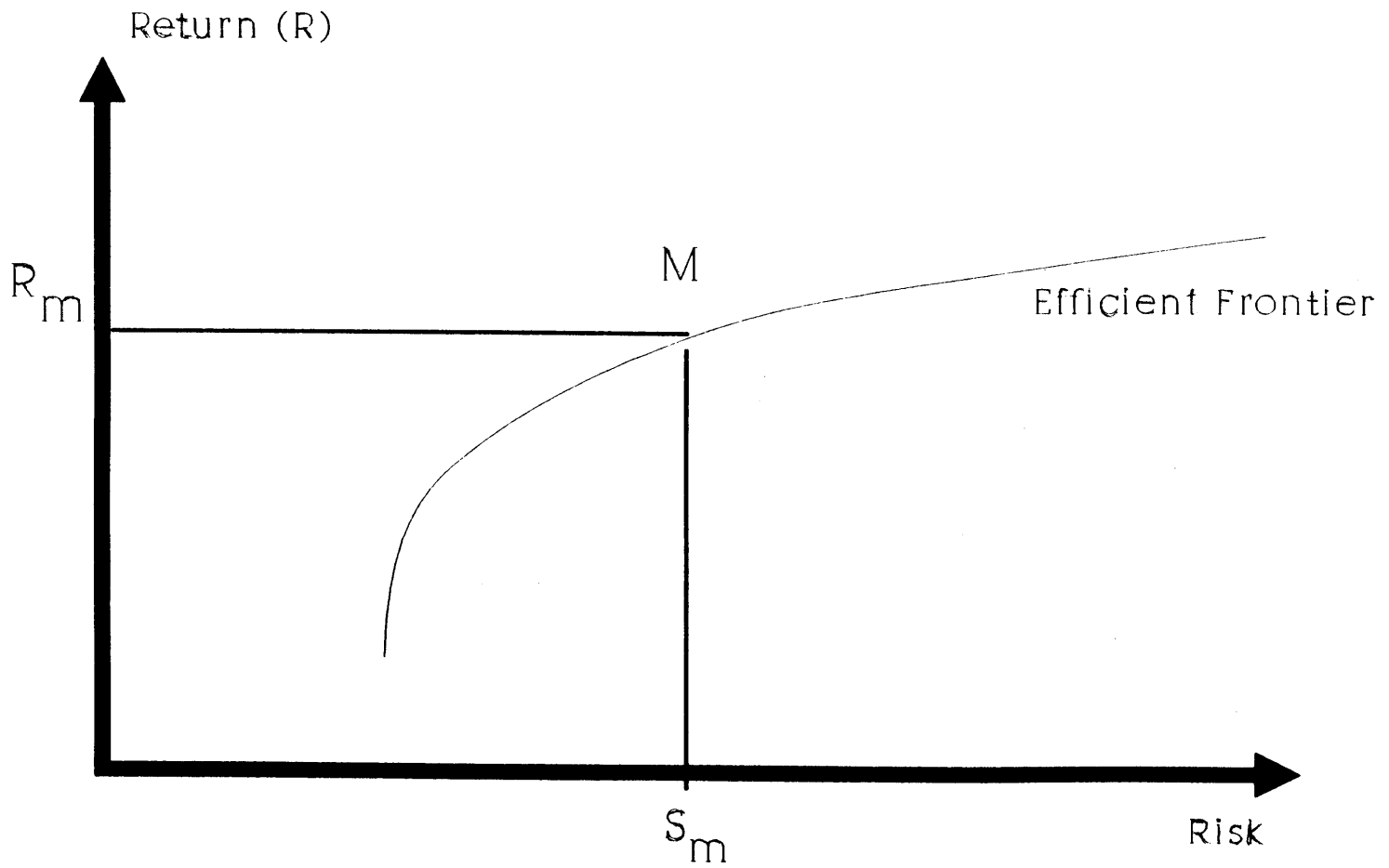
Nevertheless, the overall risk of a portfolio cannot be determined by looking at the individual returns of assets. Markowitz recognized that the returns of individual assets are interrelated (20). Although individual projects will have risk that can't be diversified away, he noted that the correct allocation of assets with low or negative relationships or "correlations" can reduce portfolio risk.

MPT promotes constructing portfolios by selecting from the investments available that will provide the optimum combination of expected return and estimated risk (23). Exhibit 1 illustrates an efficient frontier of optimal portfolio selections. For each level of risk measured on the X-axis of the graph, the Y-axis reflects the maximum return that can be achieved. The efficient frontier is the spectrum representing the combination of investments providing the maximum return for each level of risk. Rational investors will not choose any point below the curve, since a higher return would be available at the same level of risk. As investors moves up the curve, they will receive a higher risk-adjusted level of return. This type of graph could be used to look at efficient portfolios of all investment options or at portfolios of specific investments.

Sharpe (22) later added a general theory of market equilibrium to Markowitz's model. He suggested that risk includes both market-related and business-related components.

**EXHIBIT I**

**RISK/RETURN SPACE  
AND THE EFFICIENT FRONTIER**



Market risk is related to the covariance of an investment with the entire securities market. Business risk refers to internal risks such as management, leverage and production delays. Sharpe concurred with Markowitz by stating that business related risk can be diversified away. However, he added that market related risk still remains, and is the only component compensated for in the return on an investment. To measure the covariance of an individual investment's return with the entire market, the "beta" was created as a measure of relative risk.

As emphasized previously, institutional investors have been actively utilizing sophisticated MPT techniques in their securities portfolios for years. It has been noted in recent literature that reliance on these methods is primarily a function of portfolio size. The largest investors have realized that critical "big picture" decisions are more likely to determine the success or failure of a portfolio than scoring with a few good investments (6).

Investments dependent on the same portion of the economy may have returns that respond similarly. If a portfolio contains various investments with highly correlated returns, a shock to the economy such as a recession could depress the returns and value of plan assets. A severe recession could affect the ability of this plan to meet scheduled benefit payments. It is unlikely that one poorly performing asset would have such a negative impact on a portfolio. Thus, the allocation decision between sectors such as manufacturing, agriculture and banking will be more important to a portfolio than

finding one lucrative stock investment.

Various papers have been written about two categories of real estate diversification. These include discussions about the potential impact of real estate on a portfolio and about diversification opportunities within real estate (12). Although there has been no resolution to a variety of questions raised, the potential for benefits using the principles of MPT has been rationally presented. The potential benefits of implementing these techniques to real estate are similar to those already realized by applying the principles of MPT to stock and bond investments. In securities investment, sector decisions are more important to a plan than individual stock selections. Likewise, the allocation decisions across property type, location or other units of diversification are more important to real estate strategy than finding one undervalued property.

#### **BARRIERS TO APPLICATION OF MPT TO REAL ESTATE**

Many practitioners have pointed out that it is useless to attempt to apply MPT based techniques to real estate because of its many differences from other investment vehicles. While the debates concerning the effectiveness of MPT have yet to be resolved, there are various qualities unique to the real estate industry that serve as barriers to its effective implementation.

Although the businesses that underly securities may be heterogeneous, the securities themselves provide the same

basic product and are highly substitutable; typically, securities are reducible to variables of expected return and risk, making comparison among them relatively easy (14). Real estate, by contrast, is a highly diverse and individualistic market. Nonmonetary dimensions such as taste and preference for one architectural style over another can influence the value of a building.

The value of an intangible asset such as a security is substantially independent of physical attributes (14). On the contrary, the value of a tangible asset such as real estate is highly dependent on these attributes. Location is the most important tangible attribute of real estate. If a security is undervalued, a buyer from either New York or California would generally have the same likelihood of capitalizing on the opportunity. The same may not hold true for the buyer of an undervalued Manhattan office building. This contrast is magnified by high information and transaction costs and the management intensiveness of real estate.

Although real estate is largely heterogeneous, certain property types may have more homogeneous qualities than others. The potential for utilizing techniques usually associated with intangible investments, is greater for these than for other property types (2). For example, apartment buildings may have more similarities to one another than do resort properties. This implies that for certain types of property, common valuation may be easier and the potential for assessing risk and determining strategy may be greater.



When and if data improves and becomes more accessible, investors in these relatively homogeneous properties may be able to overcome a primary barrier to implementation of MPT to real estate.

The owner of a stock can pick up the morning newspaper and read about yesterday's trades or boot up a personal computer and see today's activity. The owner or prospective buyer of real estate does not have this access to information. A lack of reliable data is one of the most commonly cited barriers to effective implementation of MPT in real estate. The SEC imposes public disclosure requirements on buyers, sellers and brokers of stocks. While many institutional owners of real estate are beginning to cooperate in the exchange of information, it is still an extremely proprietary business where the use of inside information is both socially and legally sanctioned (24). The data that is available is discussed below.

As opposed to the securities market in which the sole concern often is identifying appropriate allocation strategies, real estate enables investors to add value through effective management of properties. Since real estate is a combination of tangible and managed assets, it is difficult to differentiate the marginal diversification benefits related to management, from those related to asset contribution. This serves as an additional barrier in that successful diversification becomes a function of who is managing the property and their effectiveness at doing so. This implies that in addition to having the correct "top down" strategy,

management must have expertise at a transaction level. For this reason, some large plans have instituted strategies that allocate funds among a variety of managers in order to gain diversification by judgement and management style, as well as by sector (10).

Trading of real estate is very thin compared to the continuous auction market for stocks. Real estate investment opportunities are not always readily available. The investment tenure of a real estate investment is usually longer than that of a securities investment. Also, the due diligence and legal transfers involved with the purchase and sale of real estate can take anywhere from two months to more than a year.

Closely related to this thin market are the high transaction and search costs required to purchase equity real estate directly. Every real estate transaction is distinct in nature. Two adjacent buildings with similar appearances will hold different "bundles of rights." Each property has unique qualities that will require review by legal counsel, engineers (structural, environmental, etc.), financial advisors and other professionals. Pension plans' fiduciary duties to their participants increase the need for a thorough and diligent review of all of these matters for the purpose of minimizing exposure to large financial losses.

The dollar investment of a typical real estate transaction is large compared to that of most financial vehicles. It is not usually possible to purchase just "part of a building."

All of these factors contribute to the very illiquid nature of real estate, which makes strategies that involve constantly changing allocations impractical. Open-end real estate funds, securitized transactions and REITs offer opportunities for institutions that want to include real estate in their portfolios in a form similar to securities. However, each of these vehicles has unique characteristics that cause them to provide a different set of risk and return qualities than a traditional equity real estate investment. Some of these qualities are discussed under the heading, Asset Characteristics, in Chapter Three.

The barriers to effective implementation of MPT to real estate may initially seem insurmountable. The nuances specific to real estate will prevent MPT from ever being utilized in the same manner that it is in securities investment; however, recent studies have indicated that hybrid versions of MPT-based strategies, recognizing these nuances, may be possible to implement. With pension real estate holdings already close to \$95 billion, the continued pursuit of effective diversification strategies is certainly worthwhile.

The following list summarizes the barriers to implementation:

- Heterogeneous nature of real estate
- Lack of reliable data
- Importance of management of real estate assets
- Thin trading; lack of continuous auction market
- High transaction costs

- High search / information costs
- Lack of divisibility / large unit sizes of investment vehicles
- Illiquid nature of real estate

#### **DATA CURRENTLY IN USE**

The ability of a plan to implement a particular strategy will be limited by the accuracy of the data used to measure and compare risk and return. Industry data has improved dramatically over the last ten years. It is somewhat limited, however, in that the best data currently available is only from the last twelve years. Early in that period of time, real estate values appreciated significantly.

Therefore, many simulations have determined that an efficient portfolio would include real estate allocations accounting for 10 to 75% of a portfolio. However, considerable appreciation has occurred in the stock market over the last several years, while the returns in many real estate portfolios have been waning. This highlights one of the problems of using limited historical data and indicates that future models may not achieve results that are so aggressively slanted towards real estate allocations.

The reliability of the real estate data that exists is discussed in nearly every scholarly work written about MPT. In-house and independent appraisals are the mechanisms used to measure property values in most data sources. Questions concerning the lack of industry standards in these appraisals

and the potential for smoothing bias are consistently raised (9). Smoothing biases are said to occur because appraisals may move more slowly than true market values of real estate. Real estate returns are generally perceived to be less volatile than stock returns; however, the returns are believed to be more volatile than those indicated by appraisals. While some proponents of the available data assert that an averaging of any bias will occur over time (8), the limited time period for which information is available inhibits measurement of this assertion.

While the largest fiduciaries in the country, such as Prudential and Equitable, have voluminous amounts of proprietary data that can be internally generated and observed, most plan sponsors do not have this luxury. These investors must rely upon national market indices that are available or attempt to independently gather data on individual micro-markets. While any of the data gathered may be limited in accuracy, the fiduciary duties of plan sponsors will require that they endeavor in the same manner as other prudent experts to effectively utilize the best information available.

The Russell-NCREIF index (previously Frank Russell Company Index) (17) is the industry standard among major institutional investors. It started with 234 properties in 1977 and as of 1989 included 1222 properties valued at \$15.9 billion. The index contains performance data on unleveraged properties including apartments, office buildings, retail properties, research and development / office facilities and

warehouses. It is also segmented by four geographic regions and eight regional divisions. Returns in the index are broken down by appreciation and property type.

Various papers have created Russell-NCREIF cap-adjusted indices to attempt to correct for the slow rate of reaction of appraisal-generated returns (6). To adjust for sluggishness, the appreciation components of returns are estimated by treating changes in the current net operating income of properties as indications of changes in market values. As expected, these adjustments increase the standard deviation of returns over those calculated from unadjusted Russell-NCREIF values.

Equity REIT returns have also been tracked in several indices. However, various studies have concluded that returns of equity REITs are more closely correlated with stock market returns than with other forms of equity real estate ownership (21). Investors in REITs can benefit from the use of these and broader securities market indices. Since the values of underlying assets do not appear to be reflected in REIT prices, plan sponsors should consider other data for observing returns on equity real estate.

#### **DIVERSIFICATION POSSIBILITIES DISCUSSED IN RECENT LITERATURE**

The diversification benefits that may be realized by combining real estate with other assets in a portfolio, coupled with a quest for exceptional returns, have drawn many

pension plans into real estate. Using the limited data that is available, various studies have asserted that real estate as an asset class has an extremely low or even negative correlation with stock and bond returns. They have also pointed to the potential benefits of diversifying among various categories within real estate.

Diversification by geographic area may be the most intuitive of the diversification categories considered by researchers. Developers and investors have for years mastered the nuances of a specific property type and then, either looking for diversification benefits or additional market opportunities, moved into new cities and states. However, the actual analysis of covariance among the returns of different geographic areas did not take place until several papers concerning this issue were published in the mid-1980s. The majority of these analyses used the Russell-NCREIF data, and divided the nation into four geographic regions: the East, Midwest, South and West. While the exact results of these studies have varied with methodology, most concluded that real estate is negatively correlated to stock and bond returns and that it has a strong positive correlation to inflation (6) (12).

The authors note that these categories and the simple property type categories in use might not produce results that are in line with the high costs associated with diversifying across such broad categories. Furthermore, the Russell-NCREIF data is slanted towards office and larger size properties, ignores most investments in smaller metropolitan

areas and is based on both in-house and outside appraisals.

The goal of later studies was to take the broad heterogeneous categories for diversification being used by investment managers and break them down into distinct, homogeneous categories that facilitate examination and diversification across categories (12). These studies utilized different data sources and examined the performance of assets using categories of geographic location, property type, property size, SMSA growth rate and lease maturity. The studies concluded that all of these categories showed promise and emphasized the need for investment managers to abandon the "naive" forms of diversification represented by current industry practice. They also implied that the allocation level to real estate by pension funds should increase above the 4 to 5% present level. Subsequent studies, which increased the risk of real estate using Russell-NCREIF data adjusted by both cap rate and appraisal, still concluded that real estate should represent in excess of 10% of a portfolio's assets.

Recent studies discuss the need for changing the four basic geographic regions for diversification presented in earlier studies. Hartzell, Shulman and Wurtzebach (13) divide the country into eight regions based on similar underlying economic characteristics. This study produced correlation coefficients below the traditional four region model by diversifying across regional boundaries. This indicates that diversifying by location is a viable allocation option and that the regions of the traditional model can be further



refined to increase the potential for identifying investments with negative correlations.

Various large institutional investors and advisory firms are actively examining methods for segmenting markets by location, economic area, lease duration and property type. The most extreme cases involve clustering cities, independent of location, that bear similar economic characteristics. Susan Hudson-Wilson of Aldrich, Eastman and Waltch is identifying properties that can be substituted for one another in a plan portfolio by studying property types within cities with returns that are correlated over time (15).

Some real estate practitioners have voiced concerns as to whether MPT can be applied to real estate on a practical basis. Many of these concerns as they relate to strict adherence to MPT principles are valid. Major firms may have resources to acquire all of the properties in the "efficient frontier" and be able to generate reasonable market data internally from their own immense holdings. The average size pension plan will be limited by their individual learning curves and the capabilities and willingness of management to constantly pursue new territory. The expense associated with performing due diligence and market research in a multitude of cities may inhibit pragmatic application of current MPT tools for all but the largest plans. The models that cluster cities of economic similarity, which may be separated by hundreds or thousands of miles, may be particularly cost inefficient, unless the results can be used to reduce search and management costs.

Pure MPT application would involve reallocation of assets as the efficient frontier shifts over time. The transaction costs of real estate will not allow this fine tuning to continually occur; at best, longer term targets would need to be set. Competitive conditions would also prevent certain purchases or sales from occurring that are favored by the move toward efficiency.

Many plans also have portfolios with existing equity real estate investments. Realistically, transaction costs and market conditions will prohibit major changes to these portfolios from occurring in short time periods. Long term strategy will need to be implemented that will provide for the practical realignment of these investments.

Perhaps the primary obstacle to pension plans' move toward MPT will be the existing method of plan real estate investment that has evolved over time. If funds are too small to make direct investments, they rely on advisors or consultants to locate real estate investment opportunities. Often, plans merely perform "naive diversification" among fund managers, seeking to diversify by judgement and style. Considering that it is still possible to gain a competitive advantage in real estate markets or product types, this approach may be credible. However, unless the inventory of properties with the advisory firms is consistently assessed, plans may end up with returns that are highly correlated with the balance of their other real estate investments and existing portfolio.

Ultimately, the fund's ability to implement strategy will largely be a function of plan size and other related factors of influence. These issues are discussed in detail in Chapter Three.

### CHAPTER III: Factors of Influence

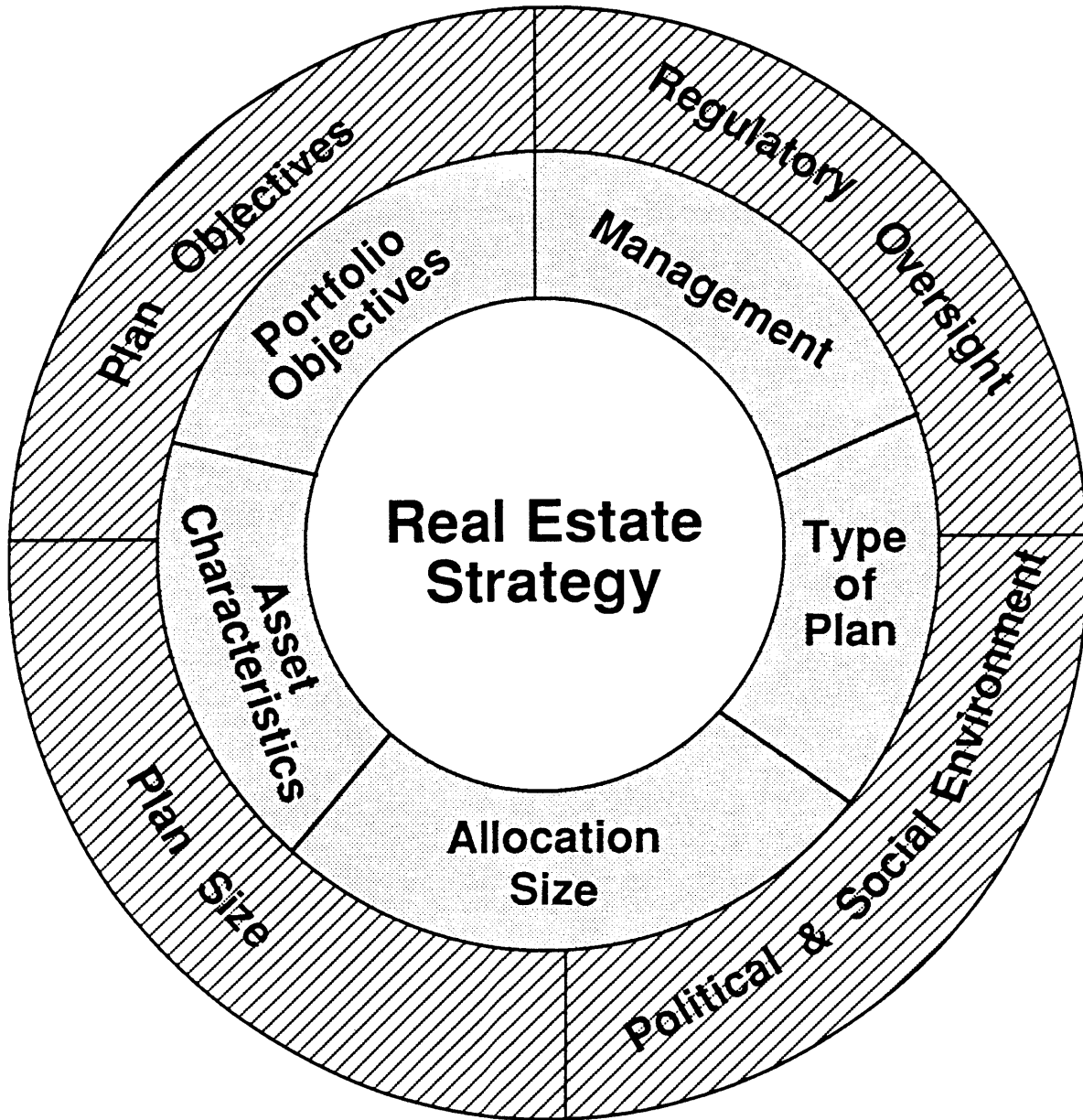
Certain factors will influence the investment strategy and "appropriate level of technology" for a pension plan's real estate diversification strategy. Although several of these factors may seem to overlap, it will be more effective to observe their impact by focusing on them individually.

The diversification strategy for pension plans will be influenced by the factors illustrated on Exhibit 2. Plan sponsors must formulate strategies that consider portfolio objectives, management characteristics, the type of plan (defined benefit or defined contribution), the size of the real estate allocation and various asset characteristics. These factors are "strategic decision points" and will directly impact the plan's strategy, as shown in the inner ring on Exhibit 2.

These decision points and, ultimately, the investment strategy for a plan operate in a "decision making environment" represented by the outer ring on Exhibit 2. This environment includes the plan objectives, plan size, the political and social environment, and regulatory oversight. Although the analysis of this environment may be largely qualitative, the outcome can limit the ability of a plan to create an efficient portfolio.

## Exhibit 2

### FACTORS INFLUENCING PENSION PLAN REAL ESTATE STRATEGY



Strategic decision points



Decision making environment

## A. STRATEGIC DECISION POINTS

### TYPE OF PLAN

The type of plan that is being utilized will greatly impact the ultimate strategy chosen. Defined benefit and defined contribution plans represent the two major types of pension plans.

Defined benefit plans are the most common plans. The majority of large public or corporate plans have this type of structure. According to a recent study by Pensions & Investments, as of October 1989, defined benefit plans represented approximately 81% or \$1.2 trillion of the assets of the 200 largest plans in the U.S. (18). This type of plan guarantees a specific benefit to participants that is independent of the value of the plan's assets. The participant's employer typically is responsible for funding the plan with contributions that must cover the guaranteed benefits. The level of assets needed in the fund is estimated using actuarial projections of factors such as wage and salary growth, employee turnover, vesting probabilities, and participant mortality (11). The Pension Benefit Guaranty Corporation (PBGC), which was created to administer the benefit guarantee program of ERISA, serves as a last resort to the unpaid participants of defined benefit plans.

Although the defined benefit plan favors the plan participants, the plan sponsor can be "rewarded" if the investment performance of plan assets is particularly good.

If returns are higher than originally anticipated, regular contributions may be reduced or forgone for certain periods of time; surplus assets may also actually revert to the sponsors upon termination of the plan (1).

However, the perceived abuse of the pension system during the leveraged buyout / takeover craze of the 1980's has sparked various proposals for legislation that would limit a corporation's ability to siphon off surplus assets. A large number of pension plans were actually closed for the purpose of capturing these reversion funds, often leaving workers with fixed annuities as substitutes. In response to public concerns about these activities, Congress raised the fund-closing surtax from 10% to 15% in 1988, and the IRS followed suit by imposing a six-month moratorium on reversions (19). Pressures have also caused some sponsors to amend their plans to have surplus assets pass to participants.

Defined contribution plans are more favorable for pension plan sponsors than are defined benefit plans. They include employee stock ownership plans (ESOPs) and profit-sharing plans. The sole obligation of the employer of a defined contribution plan participant is to make regular contributions into the plan. The obligation in this type of plan is never over or under-funded and the sponsor always knows what its liability is. Contributions are usually predicated on either the company's profitability, or on a particular percentage of the participant's salary. Participants' ultimate retirement benefits are a function of

the level of contribution and investment performance. The PBGC does not cover defined contribution plans and thus, government reporting requirements are much less than for defined benefit plans.

Specific to defined contribution plans is participant directed investment. Employers will attempt to satisfy the investment needs of participants by providing a sufficient number of vehicles for individual investment. These vehicles usually take the form of guaranteed investment contracts, stock and bond pools, and balanced funds. As there are fewer restrictions on where plan assets may be invested, a large portion of defined contribution assets are often invested in company stock. As of October 1989, company stock actually represented in excess of 23% of total assets of the 1000 largest defined contribution plans (18). Defined contribution plans are generally thought of as more conservative investors than defined benefit plans. It is interesting to note that these conservative investors are willing to depend on their employers for both their current income and, by investing heavily in company stock, their retirement income.

Real estate is a well matched investment for defined benefit funds. The long-term and stable payroll deductions from beneficiaries puts them in a strong position to provide capital and purchase real estate, even during times of high interest rates. Defined benefit plans have historically been bigger investors in real estate than defined contribution plans. In addition to being larger on an absolute basis than



defined contribution plans, defined benefit plans also have a higher percentage allocation to real estate. In 1989, the 200 largest defined benefit plans had 3.7% of their assets in real estate, compared to only 1.4% for defined contribution plans (18). Several factors may explain this phenomena. The participant directed investment programs seen in most defined contribution plans are not well-suited for the retention of large fixed investments such as real estate. Employers typically offer choices to participants in the form of funds which include stock or fixed income securities; equity real estate investments are often not included among this menu.

It is generally perceived that since the retirement benefits of defined contribution plans are directly linked to the performance of investments, with no employer or government guarantees, more conservative investment programs must be created (16). Real estate remains foreign as an investment vehicle to most plans; it is still seen as a more risky proposition than securities or debt instruments. This is ironic in that most pension investments in real estate have, unlike the underlying structure of their stock holdings, involved little or no leverage. Additionally, most properties have been prime buildings with stabilized occupancies.

The role of MPT as applied to an entire investment portfolio will not be as relevant to defined contribution as to defined benefit plans. With the participant directed investment, plan sponsors do not have control of the asset mix of each individual portfolio. Since the sponsor's obligation ends

after it has made its contribution to a participant's plan, there is no chance for unfunded liabilities as there is in defined benefit plans; other than from a moral standpoint, there will be no rewards for stellar returns.

Although the motivations are different for defined contribution plans, employers still have fiduciary duties to the participants. Various lawsuits occurred during the 1970's involving profit-sharing plans that had invested too heavily in company stock; the charge usually was made that the plan sponsor should have diversified the portfolio and reduced the chance that retirement benefits could be drastically cut (16). Diversification among real estate investments would minimize the opportunity for employees to successfully argue that a plan sponsor did not act in the best interest of the participants.

#### SIZE OF REAL ESTATE ALLOCATION

As a plan's allocation to real estate increases, there will be economies of scale related to certain costs that are independent of transaction size. These economies will have a large influence on investment strategy. Assume that it is decided that performing asset allocation in-house would be worthwhile, compensated by either savings or extra-returns. The marginal increases to this operation necessary to take on additional properties would be rather small compared to the added asset values of property. For example, if it takes a staff of eight to handle \$100 million worth of property, it

may reasonably take only a staff of ten to handle \$200 million. The same economies would hold true for the costs of assembling data bases and determining the optimal strategy. Similar economies would not exist for a plan if the \$100 million allocation was split among advisors or invested in a large commingled fund.

Up to this point, the assumption has been made that allocations to real estate would require "within real estate" diversification. However, real estate may also be a small enough targeted investment relative to the size of the portfolio that it could be interpreted as an alternative investment to primary asset class investments such as stocks and bonds. The consequences of making a \$10 million real estate investment that represented 1% of a portfolio would merit different strategy from the same dollar investment representing 10% of a portfolio. Unfortunately, this distinction, like many interpretations of what is "prudent" fiduciary behavior for plan sponsors, is extremely subjective. This issue is covered in greater detail in Chapter Four.

The size of the allocation relative to the unit size of the investment vehicle will be an important determinant of a plan's ability to exercise a particular strategy. In general, more divisible investments will be available to a greater number of plans. At one extreme, REITs will be investment opportunities for plans with enough capital to buy one share of stock. Looking at Russell-NCREIF average property values, retail shopping centers will only be

available as investments to plans with at least \$25 million in capital. This matter is discussed in greater detail in Chapter Four.

### PORTFOLIO OBJECTIVES

Identifying the appropriate strategy for a particular plan is inextricably tied to the objectives of the portfolio. It will be critical to identify the objective of the entire portfolio and the role that real estate is expected to play. Analysis of this matter will primarily revolve around the plan's mandate of paying benefits upon the retirement of employees. To understand these objectives, it will be useful to consider cash flow and liquidity requirements, inflation and tax issues, desired investment tenure and risk and return profiles.

### RISK AND RETURN

The overall risk and return targets of a plan portfolio will weigh heavily on the strategy for real estate investment. A prudent strategy will search for the highest possible return for a given level of risk. However, the plan should be explicit in its expectations for both of these areas; it should also be explicit in the time frames over which it is expecting such performance. As discussed in Chapter 2, real estate involves a unique set of problems associated with risk and return analyses. Still, to even attempt to look at real estate in a portfolio context, the plan sponsor must be able

to consider the projected incremental impact of any individual asset purchase or sale.

An important consideration of risk and return in a plan portfolio will be the context in which it is analyzed; it may not be appropriate to assess risk relative to other plans or in absolute terms. Since the ultimate purpose is to provide benefits to participants, balancing plan liabilities, cash flow and financial characteristics of the employer should be of primary concern (1).

The cost of various strategies should always be weighed against projected benefits. For example, the associated costs of creating an in-house staff should be compensated by additional returns. Likewise, the decision to use an external manager should be analyzed on the basis of performance versus fees. To attempt to look at various strategies on a realistic basis, the probability of receiving returns under different scenarios must be considered. This analysis may take the form of estimations based on both past performance and informed opinions as to future performance.

#### CASH FLOWS / LIQUIDITY REQUIREMENTS / TENURE

The current funding level of a plan should mold the objectives of the portfolio and ultimately impact the investment strategy. A plan with a small unfunded liability would justify a more aggressive strategy than one that must avoid losses to make up for a sizeable unfunded liability or

for previous losses (16).

Plan sponsors will also need to project into the future to guarantee that liquid sources of funds will be available to make required benefit payments to participants. Prudent policy would dictate that asset decisions be made on the basis of scheduled benefits. This may vary depending on the profile of participants. An older, shrinking work force may create a scenario where benefits being paid out exceed contributions, reflecting the need for a somewhat cautious strategy. A young, growing work force may create an opposite situation, with positive net contributions, and represent an opportunity for a more aggressive strategy (1).

The liquidity and cash flow needs of a plan will ultimately be a function of how far liquidity goals are projected into the future. These projections help plans to avoid making benefit payments from the untimely sale of assets with depressed price levels. The farther that a plan projects into the future, the greater its liquidity needs will be. Consequently, the overall asset mix for a given portfolio may also need to be changed to meet a targeted risk/return level, depending on the need to hold cash equivalent assets to meet payments.

Real estate investment will possibly represent the least liquid portion of a plan's assets. Since it will typically represent less than 10% of a plan's assets, this should not burden even those funds with negative net contributions and large liquidity needs. Even if liquidity is such a concern

that it actually would prohibit investment by direct purchases, separate accounts or closed-end funds, real estate can still be a viable option. Vehicles such as open-end funds or REITs still offer many of the benefits experienced in the more illiquid forms of real estate investment.

The breakdown between income and appreciation components of real estate returns must be considered when looking at liquidity and funding needs. Properties with a high current cash flow and modest appreciation components may be well-suited for plans with immediate needs for benefit payments; the opposite may hold true for plans with needs projected further into the future.

#### INFLATIONARY HEDGE

Pension plans began to look seriously at real estate in the 1970s, during which time the stock market was in a lull and fixed income instruments lost considerable purchasing power. Growth in rental income and the appreciation component of real estate offered the plans better protection against inflation (5). Various studies have concurred with this, indicating that returns on real estate investments are highly correlated with inflation.

The portfolio objectives for plans will vary depending on their goals regarding inflation's impact on assets. It is not enough to assume that a firm will acquire assets that act as hedges against inflation. It will also be necessary to

look at the firm's business revenue and its relationship to inflation. If a firm's wages increase in response to inflation while its plan asset values decrease, it may need to supplement payments to the plan during a time that cash is tight. Understanding this relationship will help a sponsor to plan accordingly and avoid unanticipated cash shortfalls.

Among property types, investors will also find varying levels of inflationary hedges. Studies have indicated that properties with income based on a tenant's sale of goods and services may provide better protection against inflation than those whose rents are not tied directly to sales. Leases tied to tenant sales, as are most retail leases, and those with "pass-through" expense clauses also have provided better inflation protection.

#### TAX CONSIDERATIONS

In creating investment strategies in line with portfolio objectives, tax issues specific to pension plans must be considered; these issues will impact purchase and sale, financing and lease structures. All pension plans come under the jurisdiction of the Internal Revenue Service and must follow strict guidelines to maintain their beneficial tax-exempt status. They must be diligent in their annual reporting of information such as plan assets, liabilities, receipts, disbursements, and unfunded liabilities.

Plans that decide to use leverage in their portfolios may be



subject to taxes on unrelated business income tax (UBIT). While it is not within the scope of this paper to broach this topic in depth, suffice to say that a plan may be subject to tax on the share of profit that is equal to the percentage of leverage used in acquisition. For example, if 75% of the purchase price is financed, 75% of the profit may be subject to UBIT. Leverage will not be appropriate for all plans; however, if the returns to a plan on a risk-adjusted basis are greater even after paying the tax related to leverage, the use of leverage could serve in the interest of plan participants.

Leases and purchase contracts must be structured with the nuances of pension plan tax issues in mind. Different rules will apply for public and private plans. For private plans, rental payments that are based on a percentage of the tenant's net profits are taxable. This will certainly affect the return and strategy for investing in retail properties, which commonly use this type of lease. Tax obligations may also arise if the property is subject to debt that is associated with sale-leaseback transactions, below-market financing or related party loans.

### **MANAGEMENT CHARACTERISTICS**

As mentioned in Chapter 2, real estate is a combination of tangible and managed assets. Thus, real estate management is a critical function that will ultimately affect the investor's return and risk exposure.

A primary influence on a plan's strategy is the ability of the sponsor to assume the management intensive responsibilities inherent in real estate investment. If they are not confident that they can perform in the capacity of a prudent expert, a financial instrument must be chosen that will relieve the plan sponsor of these functions. A steep "learning curve" with regard to real estate may compel a plan to use certain investment vehicles as a training ground to prepare it for more management intensive investments.

By selecting certain instruments, the sponsor will be relinquishing control of which assets are selected and of the ability to select the portfolio that reflects the most efficient alternative. While asset allocation decisions may be controlled in separate account and direct investment forms, REITs and CREFs will typically not offer this same opportunity.

If cost was the only consideration in the decision of hiring external managers versus bringing management in-house, many more plans would have internal stock, bond and real estate managers. Many plans are satisfied that plan management is "not their business" or feel that external managers offer a greater potential for returns. The multiple selection of managers within each class also indicates that funds are looking to diversify by style and judgement.

The question of operating costs is high on the agenda of many

pension fund executives, with a push currently underway to improve bottom line profits through reductions in management costs (1). As plans tend to move with a herd mentality, many may create internal operations in the future. As concepts of MPT develop, the availability of talent with an understanding of real estate to fill these roles will also increase.

### **ASSET CHARACTERISTICS**

The ability of a plan to implement an investment strategy for real estate is a function of the characteristics of the vehicles available for investment. The vehicles under consideration for this paper will be open and closed-end funds, separate accounts, direct investments and REITs.

Liquidity and transferability of each of these investment vehicles is different. REITs offer the most flexibility in this area with the ease and marketability of any stock investment; however, REIT returns have been shown to be highly correlated with securities returns, thus providing less diversification opportunities than other real estate investment vehicles.

Open-end funds have a greater degree of liquidity than closed-end funds and direct investment. By leaving a portion of funds in cash and securities the fund may be able to buy out partners who want to liquidate their shares.

Unfortunately open-end funds are similar to banks; if all partners came to withdraw funds at the same time, funds

available for buy-outs would be quickly drained, requiring that assets be sold to meet cash needs. Values for liquidation are determined by appraisals which take place on a quarterly basis (2).

Separate accounts and direct investment are less liquid forms of equity real estate investment than REITs and CREFs. However, market conditions at the time of desired sale will influence the relative degree of liquidity of any property. Well leased, "trophy" properties have been extremely saleable over the last five years because of pent-up demand by institutional and foreign investors.

Since there is no established secondary market for shares in closed-end funds, they represent the least liquid form. Also, when the closed-end funds reach a certain level of subscription they will "close," limiting the ability of plans to consider all funds in their universe of prospective investments. As with separate accounts and direct investment, the liquidity of closed-end funds will be largely a function of market conditions present at the time of desired sale.

It will not be possible to fulfill the same diversification goals with different investment vehicles. For example, a plan's investment strategy may be to acquire warehouse buildings by direct investment in a particular geographic area. It may be difficult to execute this strategy with a separate account if there is no advisor with expertise in that property type and geographic area. Existing open-end or

closed-end funds will even be less likely to fulfill specific goals that have been set; this will particularly hold true for narrowly defined asset characteristics. The plan may be able to identify opportunities within each of these other vehicles that are similar ; however, the heterogeneous nature of real estate will prevent the goals from being fulfilled precisely as desired.

The asset characteristic having the greatest impact on a particular investment strategy will be the "unit size" of each vehicle and the related issue of asset divisibility. REITs offer the greatest flexibility with investment of one share of a trust possible for any plan. Both closed and open-end funds are available with unit sizes ranging from "no minimum" to \$100 million; most of the larger advisors have funds available from \$1 to \$5 million. The quality of management and the risk / return characteristics will vary by advisor.

Direct investment or separate accounts have the greatest unit size and divisibility constraints. Consider the average values of properties in the 4th quarter 1989 Russell-NCREIF index (17). A warehouse building involves the lowest initial investment of \$6.3 million. If a plan wants to invest in retail centers, the most expensive property in the index, the value is \$25 million. Of course, the values represented in the index are only average values; many properties in the portfolio actually have much higher or lower values than those reflected in the average.

It is unlikely that direct investment or separate account investment will include properties with values below several million dollars; properties at the low end of the spectrum will carry a higher level of risk inconsistent with the standards of prudence. This will also depend on the role that a particular property will play in the portfolio. The largest properties will involve major investments that only the largest institutional investors or advisors can handle. These would include super regional malls and CBD high-rises that can easily exceed \$500 million in value.

The unit size constraint will impact the plan's choice of investment vehicles. If \$20 million represents a plan's entire real estate allocation and comprises 5-10% of their portfolio, it will be difficult to assert that purchasing one suburban office building is a prudent decision. The purchase of several apartment or industrial projects may offer some level of diversification; however, interviews with asset managers indicates that the "conventional wisdom" in the industry requires the purchase of at least ten properties.

## **B. DECISION MAKING ENVIRONMENT**

### **PLAN OBJECTIVES**

Before a real estate strategy can be identified it is important to consider what the pension plan's objectives are and why the plan has been established. Pension plans are not only tools to provide for the retirement of workers. The

sponsor is usually looking for something in return; the plan may serve as a tool for attracting the best quality workers or minimizing employee turnover.

Plan benefits may also serve as a bargaining chip in negotiating with workers. If workers or unions are demanding higher wage compensation that a corporation can't presently afford, additional pension benefits may be offered as a compromise. Thus, the workers get higher compensation, which the company can pay out over a much longer period of time than an immediate increase to wages would entail.

The tax-exempt nature of pension plans offers considerable opportunity for creative tax planning. If assets with income subject to a high tax rate are placed in the plan while other "low tax" assets are retained in a corporate entity, an overall tax savings should accrue to the sponsor (1). For instance, if the objective of a plan was largely tax-motivated, the sponsor might prefer to keep real estate with a low current cash flow and a high capital appreciation component on the corporate balance sheet; this same sponsor might prefer to keep guaranteed investment contracts in the pension plan. Although a warehouse with a long term tenant might still fit into this plan portfolio, a speculative office building might not. In this example, the plan objective would weigh heavily on the real estate strategy.

## PLAN SIZE

As referred to in Chapter 3, reliance on the MPT techniques utilized in securities market applications has largely been a function of plan size. Although many of the large advisory firms have sufficient equity real estate to achieve the economy of scale to make the implementation of MPT cost efficient, relatively few pension plans have this same luxury. Assuming hypothetically that 10% is a target allocation for real estate, and that a small portfolio of 10 to 15 "institutional grade" properties could be assembled for \$100-200 million, this would imply that a \$1-\$2 billion portfolio is necessary to make this level of investment. This would include only the top 318 pension plans in America (18). Thus, in this instance, both the size of the plan and the targeted level of allocation are tied closely to the ability of a plan sponsor to make either a direct or separate account investment.

## REGULATORY OVERSIGHT

### ERISA

Various pieces of legislation passed during the 1900's have greatly influenced the investment approaches of private pension plans. This legislation impacted employee coverage, revocability, administration, investment regulations and standards. The most pervasive of these laws was the Employee Retirement Income Security Act (ERISA) which was enacted in 1974. ERISA has been modified several times since 1974, with



each change increasing the oversight role of the U.S. Department of Labor.

ERISA was the product of ten years of debate over pension reform. At a most simplistic level, it was crafted to ensure that the pension commitments made to employees by corporations were upheld. It imposed financial responsibilities on employers by creating strict funding standards which would increase the probability that benefits would be received by participants.

To additionally insure that employees receive their benefits, ERISA established the Pension Benefit Guarantee Corporation (PBGC), a guarantee program for defined benefit plans. Their position as guarantor also gives them an oversight role on plan investments. The PBGC is funded by assessments on both single and multi-employer defined benefit plans.

Perhaps of greatest influence on the determination of appropriate investment strategies for pension plans was ERISA's creation of standards that are required of plan sponsors and investment managers in the execution of their duties. The four general fiduciary duties specified relate to loyalty, prudence, diversification and conformity to plan documents and instruments (11).

The duty of loyalty relates to avoiding self-dealing and conflicts of interest. According to ERISA, the fiduciary must "discharge his or her duties solely in the interest of plan participants or beneficiaries, and for the sole purpose

of providing plan benefits to them." This duty also implies that plan sponsors must avoid favoring one group of plan participants over another.

The plan sponsor must act "with the care, skill, prudence and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and like aims." The Labor Department followed up this language with a 1979 interpretation indicating that the prudence of individual investments would be judged on the basis of suitability within the plan's total investment program. This included consideration of the portfolio's composition, liquidity and current return relative to anticipated cash flow requirements, and the projected return of the portfolio relative to the funding requirements. It was also explicitly stated in this interpretation that the "prudent man" standard did not eliminate the opportunity to invest in risky investments (4).

Various legal commentators have pointed out that although the prudence standard created in ERISA is similar to the "prudent man" rule covering trusts, it actually creates a standard of "prudent expert." They indicate that since a prudent expert has a greater familiarity with the investment management problem, he or she will be held to a higher standard of accountability. Their standards will not just be compared to the "common man" but against other fiduciaries in like positions (16).

ERISA was drafted prior to the time that plan sponsors were instituting diversification strategies, even for securities, that were based on MPT. Thus, ERISA does not explicitly state or create standards for appropriate methods of diversification. It only specifies "diversifying the investments of the plan so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so." Although the language basically suggests that a plan should not "put all of its eggs in one basket," it does seem to imply that some losses can occur without creating a breach of fiduciary duty.

The fourth fiduciary duty merely requires a plan to follow the self-imposed written rules that it has created. ERISA also states that liability for fiduciary misconduct will extend to both corporate sponsors and individuals.

The ERISA standards impacted diversification strategies and have been considered for years in the implementation of MPT principles on other assets in plan portfolios. They impact both plan sponsors as well as advisors and/or consultants acting in fiduciary capacities for the plan. Their influence on real estate strategy has been profound over the last ten years, but will probably gain in importance as industry data improves and techniques of diversification based on MPT become more prevalent.

The "prudent man/expert" standard should receive serious consideration as the plan sponsor is formulating real estate investment strategy. It is logical that the standards

expected of pension plans will increase as more fiduciaries begin to apply sophisticated top-down approaches to their real estate investments. A greater understanding of the nuances of real estate risks, returns, and portfolio implications will be necessary to achieve the high standards imposed by the duty of prudence.

Plan sponsors have historically used advisory firms and pooled investment vehicles to fulfill the prudence standard. However, these firms often are looking only at specific asset purchases as opposed to portfolio implications of individual investments. Although a particular investment pool may actually achieve some level of diversification, a reduction in portfolio risk for the plan/investor may or may not occur, depending on the composition of its existing assets. In order to effectively identify a prudent strategy, the plan sponsor must be willing to assume the responsibilities associated with implementing a strategy or bring in an unbiased, third party who is able to competently make these decisions.

Additionally, advisory firms are in the business of selling the shares of their particular pools or specialty funds; this interest may be in conflict with identifying the most appropriate forms of investment for a plan. In many instances, these firms are simultaneously managing separate client accounts and general account funds. Difficult decisions often occur as to which account should benefit from the acquisition of prime properties. To solve this dilemma, some of the advisory firms have created subsidiaries to

maintain distinct identities between funds (2). Others have instituted simple lottery systems to allocate among various accounts without bias.

With allocations to real estate approaching nearly 5% of assets in the major funds, treatment of real estate as the "venture capital" portion of a portfolio would appear to conflict with the diversification standard. Holding the majority of a securities portfolio in one stock would be considered imprudent because of the lack of diversification; as real estate gains respect as an asset class, this same analysis should be applied.

The standards created in ERISA will continue to have a profound effect on real estate investment for pension plans. As plan sponsors formulate their investment strategies, they must recall that the ultimate purpose of a plan is to provide retirement funds for company or public employees and that ERISA was created to protect the rights of these employees. The government bail-out and continuing defaults in the thrift and banking industries have encouraged increased scrutiny of the conduct of pension plans. Even with recent increases in insurance rates paid by the nation's plans, the PBGC has a negative "net worth" with assets of approximately \$2.5 billion against approximately \$4 billion in liabilities (19). The government will certainly want to avoid watching the PBGC turn into a 1990's version of the FSLIC. Plan sponsor adherence to the duties created under ERISA will help to minimize liability and chances for perceived misconduct.

## STATE STATUTES & COMMON LAW

State statutes and common law are most often discussed with reference to public pension plans, as these plans do not fall under the guidelines of ERISA. The common law standards for fiduciary conduct and the state statutes governing administration of public retirement systems are often more rigid than those of ERISA.

Common law requirements are similar to ERISA with requirements for prudence, loyalty and restrictions against conflicts of interest. State statutes, that have replaced common law standards in many states, regulate plan investments by limiting investments in certain vehicles, while requiring certain other types; or requiring adherence to prudence standards similar to common law; or requiring some combination of common law and investment guidelines (11).

Although public plans are not usually as well funded as private plans, their funding periods are typically longer. This lower funding level implies that the risk of default on benefit obligations is perceived to be much lower for public than for private sponsors (16).

Public pension plans have historically been more conservative than private plans, typically holding a much lower percentage of equities in their portfolios. The real estate holdings of public plans are reasonably close on a percentage basis to that of private plans. In 1989, the 200 largest public

defined benefit plans held 3.8% of their portfolios in real estate compared to 4.5% for private plans. This represented an increase from 1987 of 12% for public plans and a decrease of 6% for the private plans (18).

The implications of state statutes and common law standards for public plan real estate investment strategy are similar to ERISA's impact on private plans. Not only are the future retirement benefits of participants at stake, the plan's activities will be viewed in the public eye as "government activities" creating the need for the highest standards of prudence and loyalty. This additional level of scrutiny only offers additional rationale for implementing the most sophisticated techniques for diversification available.

#### POLITICAL AND SOCIAL INFLUENCES

Certain "non-monetary" investment considerations will impact the investment strategy of plans. In many instances, these considerations will not bear any relation to identifying the efficient frontier for a portfolio. Political and social influences, which are an area of frequent plan controversy, are the primary non-monetary considerations.

An example often cited in the influence of social issues on plans is the sale of securities related to South African companies. It is simple to project that this divestment could easily extend to other areas of reasoning such as environmental consciousness and union activism. Reductions in federal aid have sparked much of the push for social

investment by plans.

Different opinions have been formed as to whether social investing is consistent with the goals of pension plans. The views tend to vary depending on whether the plan is affiliated with government, industry or labor. Primary opponents to this form of investment for plans contend that it simply amounts to a subsidy for economic, social and political goals; it is their opinion that these subsidies should be absorbed by the government and that the primary purpose of plans is to provide the best possible return on plan assets. They further state that by sacrificing financial return for social clauses, plan sponsors are breaching the duties of loyalty and prudence (11).

Proponents of "nontraditional" investment goals have varied motivations. While some believe that financial performance criteria for these investments must be met, others would prefer to also consider investments that do not meet any such standards. Some advocates assert that by using plan assets for investments such as housing and economic development, funding for plans may actually improve as area economies grow. At a basic level, most of the supporters feel that plan assets belong to the participants, who should have the ability to decide where their funds are invested.

These nonmonetary considerations will impact the ability of a plan sponsor to implement the most effective strategies for diversification. Since these social influences will favor certain geographic areas and investment types, the sponsor



will be limited to a smaller universe of investments. It is possible that strategy could be limited to attempting to identify properties with low or negative covariation of returns within certain cities or states.

Suppose that low income housing with a below-market return is socially imposed as a portion of a portfolio. If overall return objectives for a plan are to remain the same, the strategy for the balance of the portfolio must change. In order to meet the targeted objectives, the risk and return profile of other investments pursued will need to increase. Thus, the construction of an efficient portfolio may need to be altered to subsidize social investments in a plan.

#### **LIKELY EVOLUTION OF PENSION PLAN REAL ESTATE INVESTMENT**

The factors of influence described will mold the strategy and evolution of pension plan real estate investment. As information improves and the results of new allocation models are analyzed, real estate allocations may rise to 10% of assets as projected by many industry experts. However, various factors may prevent this from occurring over the next five to seven years.

As mentioned previously, allocation models have mostly used data gathered during a time that real estate returns exceeded those of most other financial instruments. This caused many of these models to generate efficient portfolios including real estate allocations in excess of 10%. However, the

overbuilding that has taken place in most major metropolitan areas, has caused vacancies to rise and effective rents to fall. Returns on the real estate in some institutional real estate portfolios have actually fallen below those on Treasury bonds over the last several years. This new information would probably cause many previously calculated portfolio models to reduce the allocation to real estate.

The present liquidity crisis for new development funds and the uncertainty caused by the large inventory of Resolution Trust Corporation properties may continue to darken the image of real estate for institutions over the next five years. There is also a shortage of the "institutional quality" properties that plans traditionally have invested in. In the mean time, plan assets continue to grow by approximately \$300 billion per year. The combination of new real estate acquisitions and appreciation of existing properties must increase by approximately 12% per year just to maintain current allocation levels. With the current state of the real estate market and lack of available product, it is difficult to imagine that allocations will exceed current levels in the near term.

Studies underway at a number of the nation's major institutions and advisory firms should shed additional light on potential applications of MPT to real estate. As these methods are refined and real estate can be properly analyzed with primary asset investments such as stocks and bonds, pension plans should give additional consideration to real estate allocations. However, it is unlikely that most plans

will implement these techniques. As in securities investment, mainly the largest plans will be willing to spend the time and upfront resources necessary to bring MPT to real estate analyses.

Plans have been under scrutiny to control their costs of operation. As they attempt to minimize expenses and search for higher returns, many larger plans may begin to bring management and allocation functions in-house. New employment opportunities will exist for professionals looking to manage portfolios in institutional settings.

Additionally, pressure to reduce fees will be created as plans begin to bring operations in-house and additional competition enters the advisory and consulting businesses. This may create a scenario where these operations become dependent on volume as margins are reduced for both advisors and consultants. As in the financial services industry, only the largest firms and those with specialized niches may survive this potential shakeout.

The potential for sizeable increases to real estate allocations creates a system that will reward those able to create vehicles attracting the attention of both defined benefit and defined contribution plans. The barriers to the application of MPT to real estate described in Chapter Two will encourage additional innovation in the securitization of real estate. The properties best suited for this securitization may be those properties with many homogeneous qualities, such as apartment buildings. Furthermore, the

large potential market represented by defined contribution plans will encourage the innovation of vehicles and methods that will overcome the problems associated with these employee-directed plans.

#### **CHAPTER IV: Methodology & Proposed Framework**

The purpose of this chapter is to create a general framework that a pension plan sponsor can utilize to determine pragmatic allocation strategies. MPT and its application to real estate are still in a state of flux, making it impossible to utilize complex quantitative techniques to determine strategy that will apply for each plan. As illustrated in Chapter Three, there are a variety of factors that may either enhance or inhibit the ability of a plan to implement a particular strategy.

This chapter extracts common elements from the factors of influence and illustrates different potential strategies for plans against a general framework of industry averages and conventional wisdom from the real estate industry. The primary consideration is the impact of plan size, level of real estate allocation, and asset characteristics on the diversification strategy. Many of the factors of influence are qualitative in nature and are difficult to consider simultaneously. Thus, a plan sponsor must examine these qualitative constraints in concert with the tangible constraints that will be considered.

As the percentage allocation to real estate becomes significant enough for sponsors to be concerned about the risk of large losses cited in ERISA and many state statutes, diversification within real estate should occur. However, it is realistic to assume that at certain low levels of

allocation, diversification may not be a concern. Exhibit 3, which shows potential allocations as a function of plan size, reflects this rationale. The Alternative Asset Class category, which includes allocations from 1-2% of the portfolio, is presumed to include investment vehicles that carry a higher risk and return than the the primary asset classes in the portfolio.

The view of real estate has shifted in the past ten years from just one of many investment alternatives to a more significant asset class. Real estate was previously categorized with high risk alternatives such as venture capital investments, instead of with primary asset classes such as stocks and bonds. The increasing allocation of real estate in plan portfolios is changing this perception. Indeed, at 5-10% of the portfolio, real estate should be considered in the same manner as other primary asset classes; a Primary Asset Class category of this size requires that within real estate diversification be pursued.

Plan decisions on allocation strategies are subjective in nature and will vary since ERISA does not establish strict standards for diversification or the measurement of risk. Each plan will have different perceptions as to what level of allocation constitutes both Primary Asset Class and Alternative Asset Class categories. Thus, percentages for either category can be adjusted to more closely reflect the strategies of individual plans.

Merely looking at these categories without consideration of

**EXHIBIT 3**

**REAL ESTATE ALLOCATION AS A FUNCTION OF PLAN SIZE**

PLAN SIZE (000,000)	P&I RANK *	ALTERNATIVE ASSET CLASS ALLOCATION		PRIMARY ASSET CLASS ALLOCATION	
		1%	2%	5%	10%
\$50	N/A	\$0.5	\$1	\$2.5	\$5
\$100	N/A	\$1	\$2	\$5	\$10
\$200	946	\$2	\$4	\$10	\$20
\$500	533	\$5	\$10	\$25	\$50
\$1,000	318	\$10	\$20	\$50	\$100
\$2,000	162	\$20	\$40	\$100	\$200
\$5,000	73	\$50	\$100	\$250	\$500
\$10,000	34	\$100	\$200	\$500	\$1,000
\$20,000	14	\$200	\$400	\$1,000	\$2,000

\* RANKINGS FROM PENSION AND INVESTMENTS 1-22-90.

the dollars involved would also not be prudent. For instance, 1% of a \$2 billion plan amounts to \$200 million; it may not please participants to see a sum of this size invested without any attempt to diversify.

Real estate will increase in importance to all pension plans as more securitized vehicles become available and are proven to be prudent investments. Until this occurs, plan allocations to real estate will mostly be limited to the largest 1000 plans in America (18). These plans represent approximately 70% of the total U.S. pension assets. In turn, approximately 76% of the assets of the top 1000 plans, or \$1.435 trillion are in the top 200 plans in America. They hold about 90% of U.S. pension real estate assets. These large plans have the greatest flexibility and opportunities for implementing different diversification strategies.

Various studies of MPT have shown "efficient portfolios" of properties, showing percentage allocations to various property types, geographic areas, economic areas and other units of diversification. However, if the investment vehicle lacks divisibility, whether it is a shopping center, office building, or share in a commingled fund, the efficient frontier may be unobtainable for certain levels of allocation. This is not to belittle these studies of efficient portfolios which are shedding new light on the correlations and returns of properties; on the contrary, the purpose of these observations is to observe what plans might have to do in order to best utilize this new information.



Exhibit 4 and 5 calculate the portfolios that can be created under different allocation levels assuming average property values from the 4th quarter 1989 Russell-NCREIF index portfolio. These benchmarks are then used to analyze direct investment and separate account possibilities. Although these numbers are worth observing for the purposes of this particular analysis, they are average values that might not apply to each portfolio. Individual properties, of course, will have a wider range of acquisition costs.

The number of properties that should be purchased by a plan to achieve a certain level of diversification is unknown. Even at the nation's top advisory firms, this decision is more intuitive than quantitative. Although real estate firms are beginning to speak of things such as "core portfolios" there is not a parallel to the securities market's value-weighted index portfolio.

Theoretically, two properties with a covariance of -1 could create a portfolio with perfect within real estate diversification. However, from a practical standpoint this is unlikely to occur and the plan sponsor would be too concerned about perceived mismanagement of funds to institute such a strategy. Thus, using an "intuitive sense" approach, we will assume that the Alternative Asset Class group is unconcerned with the number of properties purchased, and that the Primary Asset Class requires a minimum of ten properties. Interviews with asset managers indicates that ten properties represent an approximation of the number of these needed to yield a suitable comfort level for many CREF managers.

**EXHIBIT 4**

**SINGLE PROPERTY TYPE PORTFOLIOS BASED ON RUSSELL-NCREIF  
INDEX AVERAGE VALUES (4TH QUARTER 1989) \***

R.E. ALLOCATION (000,000)	# OF PROPERTIES IN SINGLE PROPERTY TYPE PORTFOLIOS (BASED ON AVERAGE PROPERTY VALUES)				
	OFFICE	RETAIL	WARE	R&D	APT
\$0.5	0.03	0.02	0.08	0.06	0.04
\$1	0.05	0.04	0.16	0.12	0.08
\$2.5	0.13	0.10	0.40	0.31	0.19
\$5	0.25	0.20	0.79	0.62	0.38
\$10	0.51	0.40	1.59	1.23	0.76
\$20	1.02	0.80	3.17	2.47	1.52
\$25	1.27	1.00	3.97	3.09	1.89
\$50	2.54	2.00	7.94	6.17	3.79
\$100	5.08	4.00	15.87	12.35	7.58
\$200	10.15	8.00	31.75	24.69	15.15
\$250	12.69	10.00	39.68	30.86	18.94
\$500	25.38	20.00	79.37	61.73	37.88
\$1,000	50.76	40.00	158.73	123.46	75.76
\$2,000	101.52	80.00	317.46	246.91	151.52

**THRESHOLD ALLOCATIONS FOR ALTERNATIVE & PRIMARY ASSET CLASSES (000,000)**

	OFFICE	RETAIL	WARE	R&D	APT
ALTERNATIVE ASSET (1 PROP)	\$20	\$25	\$10	\$10	\$20
PRIMARY ASSET (10 PROPS)	\$200	\$250	\$100	\$100	\$200

**RUSSELL-NCREIF INDEX AVERAGE PROPERTY VALUES (000,000) \*\***

Office	\$19.7
Retail	\$25.0
Warehouse	\$6.3
R&D / Office	\$8.1
Apartment	\$13.2

\* THE "OTHER" PROPERTY TYPE ACCOUNTING FOR 2% OF INDEX HAS BEEN EXCLUDED.

\*\* TOTAL VALUE BY PROPERTY TYPE / # OF PROPERTIES IN INDEX PORTFOLIO.

**EXHIBIT 5**

**VALUE WEIGHTED PORTFOLIOS ALLOCATED ON BASIS OF RUSSELL-NCREIF INDEX**  
**AVERAGE VALUES & DISTRIBUTION (4TH QUARTER 1989) \***

R.E. ALLOCATION (000,000)      # OF PROPERTIES IN RUSSELL-NCREIF VALUE WEIGHTED PORTFOLIOS  
 (BASED ON AVERAGE PROPERTY VALUES & DISTRIBUTION)

	OFFICE	RETAIL	WARE	R&D	APT	TOTAL
\$0.5	0.01	0.00	0.01	0.01	0.00	0.04
\$1	0.02	0.01	0.03	0.02	0.01	0.08
\$2.5	0.05	0.02	0.07	0.04	0.01	0.19
\$5	0.10	0.05	0.14	0.08	0.03	0.39
\$10	0.21	0.09	0.27	0.15	0.05	0.78
\$20	0.41	0.18	0.55	0.31	0.10	1.55
\$25	0.52	0.23	0.69	0.38	0.13	1.94
\$50	1.03	0.46	1.37	0.76	0.26	3.88
\$100	2.06	0.92	2.74	1.53	0.52	7.77 **
\$200	4.12	1.83	5.49	3.05	1.04	15.53 **
\$250	5.15	2.29	6.86	3.82	1.30	19.41
\$500	10.31	4.58	13.71	7.63	2.59	38.83
\$1,000	20.62	9.16	27.43	15.27	5.18	77.65
\$2,000	41.23	18.32	54.85	30.53	10.36	155.30

RUSSELL-NCREIF DISTRIBUTION OF PROPERTY VALUES

	(000,000)	%
Office	\$6,290	41%
Retail	\$3,547	23%
Warehouse	\$2,676	17%
R&D / Office	\$1,915	12%
Apartment	\$1,059	7%
TOTAL	\$15,487	100%

\* THE "OTHER" PROPERTY TYPE ACCOUNTING FOR 2% OF INDEX HAS BEEN EXCLUDED.

\*\* THRESHOLD ALLOCATION FOR PRIMARY ASSET CLASS TO ACQUIRE INDEX PORTFOLIO WITH TEN PROPERTIES FALLS BETWEEN \$100 - \$200 MILLION ALLOCATION.

In the property specific portfolios created in Exhibit 4, the Alternative Asset Class group will need to have a plan size of \$500 million to be able to purchase property directly. Warehouse and R&D buildings offer the first opportunity for investment. It is interesting to note that with the given set of assumptions, only the top 500 or so plans in the country will even have the asset base necessary to purchase properties directly. In order to be able to purchase the least expensive properties, the Primary Asset Class group will need to have a plan size in excess of \$500 million. At the extreme of expensive properties would be a portfolio of retail centers, which can only be purchased by the top 162 plans with assets in excess of \$2 billion.

Exhibit 5 reflects the number of Russell-NCREIF average properties that are in portfolios of the calculated allocation levels. If an investor wanted to use the index as a "proxy" for a desired portfolio, they could attempt to allocate it using these percentages. In this instance, a value-weighted portfolio of ten or more Russell-NCREIF index portfolio properties can only be acquired by plans with assets in excess of \$1 billion.

Exhibit 6 shows a set of practical investment options available to plans with \$50 million - \$20 billion in assets. Vehicles being considered are CREFs, separate accounts and direct investment. This list is not all-inclusive; other vehicles are certainly available as viable options for plan investment, and are in various stages of maturity and development. Although these other options are not analyzed

EXHIBIT 6

PRAGMATIC REAL ESTATE ALLOCATION STRATEGIES FOR PENSION PLANS OF \$50 MILLION - \$20 BILLION IN ASSETS

PLAN SIZE (000,000)	ALTERNATIVE ASSET CLASS (1-2% ALLOCATION)		PRIMARY ASSET CLASS (5-10% ALLOCATION)	
\$50	ALLOCATION: Open-end or closed-end CREFs:	\$0.5 - \$1 million \$0.5 - \$1 million (1 advisor)	ALLOCATION: Open-end or closed-end CREFs:	\$2.5 - \$5 million \$2.5 - \$5 million (2 advisors)
\$100	ALLOCATION: Open-end or closed-end CREFs:	\$1 - \$2 million \$1 - \$2 million (1 advisor)	ALLOCATION: Open-end or closed-end CREFs:	\$5 - \$10 million \$5 - \$10 million (2-4 advisors)
\$200	ALLOCATION: Open-end or closed-end CREFs:	\$2 - \$4 million \$2 - \$4 million (1 advisor)	ALLOCATION: Open-end or closed-end CREFs:	\$10 - \$20 million \$10 - \$20 million (4-5 advisors)
\$500	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$5 - \$10 million \$5 - \$10 million (1-4 advisors) Warehouse R&D	ALLOCATION: Open-end or closed-end CREFs:	\$25 - \$50 million \$25 - \$50 million (5 advisors)
\$1,000	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$10 - \$20 million \$10 - \$20 million (1-5 advisors) Office; 1-3 Warehouse 1-2 R&D; 1 Apartment	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$50 - \$100 million \$50 - \$100 million (5 advisors) 10-15 Warehouse 10-12 R&D
\$2,000	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$20 - \$40 million \$20 - \$40 million (1-5 advisors) Office; 1 Retail 3-6 Warehouse; 2-4 R&D 1-3 Apartment	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$100 - \$200 million \$100 - \$200 million (5 advisors) 10 Office; 15-31 Warehouse * 12-24 R&D; 10-15 Apartment 15 Russell-NCREIF Index Portfolio properties
\$5,000	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$50 - \$100 million \$50 - \$100 million (1-5 advisors) 2-5 Office; 2-4 Retail 2-15 Warehouse; 6-12 R&D 3-7 Apartment	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$250 - \$500 million \$250 - \$500 million (5 advisors) 12-25 Office; 10-20 Retail 30-70 Warehouse; 30-61 R&D 18-37 Apartment; 10-38 Russell- NCREIF Index Portfolio properties
\$10,000	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$100 - \$200 million \$100 - \$200 million (1-5 advisors) 5-10 Office; 4-8 Retail 15-31 Warehouse; 12-24 R&D 7-15 Apartment; 15 Russell- NCREIF Index Portfolio properties	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$500 million - \$1 billion \$500 million - \$1 billion (5-10 advisors) 25-50 Office; 20-40 Retail 70-158 Warehouse; 61-123 R&D 37-75 Apartment; 38-77 Russell- NCREIF Index Portfolio properties
\$20,000	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$200 - \$400 million \$200 - \$400 million (1-5 advisors) 10-20 Office; 8-16 Retail 31-63 Warehouse; 24-40 R&D 15-30 Apartment; 15-30 Russell- NCREIF Index Portfolio properties	ALLOCATION: Open-end or closed-end CREFs: Direct or S.A.:	\$1 - \$2 billion \$1 billion (10 advisors) 50-101 Office; 40-80 Retail 158-317 Warehouse; 123-247 R&D 75-151 Apartment; 77-155 Russell- NCREIF Index Portfolio properties

\* Direct or separate account investments represent mutually exclusive separate property and Russell-NCREIF Index portfolios. For example, a \$2 billion plan making a \$100-\$200 million Primary Asset Class allocation could purchase 10 Office properties OR 10-15 Apartment properties OR 15 Russell-NCREIF Index Portfolio properties.

in this exhibit, they could be incorporated with similar techniques. Also, as the purpose of the exhibit is to consider the opportunity for investing in certain vehicles, the many combinations that could occur among these investments are not presented.

Exhibit 6 applies primarily to defined benefit plan investors. Unless defined contribution plans implement policies that limit the liquidity constraints present in participant-directed plans, most traditional real estate vehicles will not be practical investments for them. However, investments such as REITs and newly evolving securitized forms would be effective ways for these plans to invest; these forms will not have many of the divisibility problems prevalent in other vehicles.

Because of the wide variety of open-end and closed-end CREFs available at unit prices beginning at \$250,000, it is assumed that these investments could be made at every level of allocation by both Alternative Asset and Primary Asset classes. Plans using these vehicles to diversify will need to identify advisors implementing MPT strategy, or will need to execute multifund strategy that includes careful analysis of the composition of the plan, the fund and each individual advisor's strategy.

Several assumptions were made in this exhibit. First, although funds are available in a variety of sizes, it was assumed that another advisor will not be chosen until at least \$5 million was available for real estate, leaving \$2.5

million for each of these first advisors. In attempting to diversify under the Primary Asset Class, the plan will want to maximize the number of advisors up to a level of five, which appears to be representative of large portfolio practice. However, a limit would be set that no advisor manage in excess of \$100 million; this will require the addition of advisors past five as the allocation exceeds \$500 million. Since plans with Alternative Asset Class investments are not primarily concerned with diversification, they will accept as few as one advisor, depending on opportunities for return. Neither class will want to assume the burden of managing an inordinant number of advisors; a limit of ten advisors will apply to both classes. These limits suggest that \$1 billion will be the maximum allocation that a plan will make to advisors, without considering in-house management.

The Alternative Asset Class group will not be searching for diversification; it will be only looking to maximize the return of its small allocation. As mentioned previously, this group will not be able to purchase directly or by separate account until it reaches a plan size of \$500 million in assets. These investors may prefer higher risk, niche products.

At a plan size of \$1 billion, the Primary Asset Class group will be able to make direct purchases. At this level, the plan will be able to purchase a portfolio with ten properties. At \$2 billion, a plan will be able to purchase the "index" portfolio with ten properties.

There is a high cost of entry for direct purchases or separate account investment. Coinvestment, the combination of two or more plans to conduct these types of purchases, serves to overcome this hurdle. For this reason, it is becoming a popular plan vehicle for acquiring property directly or by separate account.

Plans must also decide whether management functions are best handled in-house or by external management. The size of the real estate allocation will be the primary determinant of this decision. Certain economies will occur with increasing allocations and internal operations which will allow the plan to reduce management costs by eliminating the profit margin of the advisory firms. However, if reduced returns accompany the decision to bring the operation in-house, the savings in operating costs may not justify the elimination of external managers. Since internal management will be measured against other "prudent experts," the capabilities and motivation of sponsors to implement strategy will also be a critical part of this decision.



## CHAPTER V: Conclusions

Various factors of influence impact the ability of a plan to implement a particular real estate investment strategy. As seen in Chapter Three, many of the factors are qualitative in nature, yet still must be considered in the formulation of strategy. Chapter Four examined certain quantitative factors of influence under the premise that certain investment strategies will only be available to plans of appropriate sizes. Factors examined were plan size, level of real estate allocation and the asset characteristic of divisibility.

A general framework was created using a combination of industry averages and conventional wisdom from the real estate and pension industries. Strategies were examined for plans of \$50 million to \$20 billion in assets. As expected, it was determined that the most real estate investment strategies are available to the largest pension plans in the country. Under the chosen set of assumptions, plans looking for a diversified portfolio of properties need to have a minimum of \$1 billion in assets. This indicates that only the top 318 plans in the U.S. will be able to actively implement MPT-based strategies by direct purchase or separate accounts. Plans under this size will purchase shares of CREFs or REITs.

Plan sponsors can utilize this simple framework in combination with the qualitative factors described in Chapter Three to perform initial analyses of strategies available for their investment in real estate. Of course, the framework

can be altered to reflect allocation levels appropriate for a particular plan and to include other types of real estate investment vehicles under consideration.

When selecting a strategy, a plan sponsor must not lose sight of the plan's purpose of providing retirement benefits to participants. Ultimately, a sponsor's performance will be measured by comparison to other fiduciaries and in the timely payment of these benefits.

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