

# Portfolio Implications of Apartment Investing

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**Abstract** This study examines the portfolio implications of apartment investing. In particular, it concentrates on the sector's relative stability, liquidity and current market outlook. Support is found for many of the advantages attributed to apartments relative to other property types. The apartment sector has historically offered high risk-adjusted returns and a relatively low correlation with other property sectors. These features, combined with the attractive demographics and stable space market fundamentals, suggest that the current environment should be favorable for apartment investing. However, the popularity of the sector, aggressive rent growth assumptions and potential limitations on future immigration provide sources of performance risk.

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## Introduction

During economic slowdowns, investors seek assets that have defensive characteristics. In the current market downturn, much of the attention in the real estate markets has been focused on apartments, which allegedly offer a number of intrinsic advantages relative to other property types during periods of weak economic performance (National Multi Housing Council, 2001). Numerous studies<sup>1</sup> and market outlook reports have commented on the favorable aspects of apartment investments. These studies argue that the apartment sector benefits from a more fluid, diversified and perhaps even counter-cyclical demand base, more responsive supply, stable capital flows, generally smaller investment sizes and a favorable outlook due in large part to demographic trends. Advocates of apartment investment suggest that these attributes provide higher liquidity, lower market and asset volatility, and favorable diversification benefits for apartment investments.

While the arguments in favor of apartment investments are intuitively appealing, relatively little empirical evidence exists to support these claims. Support for these claims is critical as the industry outlook studies noted above are regularly used to make or explain institutional asset allocation decisions. In this article, these arguments are dissected and empirical evidence of their validity or lack thereof is provided. For simplicity, these arguments are classified into four broad categories: stability, portfolio diversification, liquidity and market timing.

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## Stability – Property and Capital Markets

### Overview

Several underlying characteristics of apartments traditionally have been associated with stability. The most important of these concerns the demand and supply of apartment units and capital flows to the property sector. From the perspective of demand, apartments are believed to have a more stable, predictable and diversified demand base than other property types, which should make the apartment market more efficient and less susceptible to sharp cyclical variations. At the same time, the supply of units is believed to be more responsive due to shorter construction lead times and the common practice of developing apartment properties in phases. Although it is somewhat difficult to distinguish between cause and effect, the stability and predictability in the supply and demand of apartment units is closely related to the stability of the capital flows to the sector.

### Demand and Supply

While there are numerous factors that affect the magnitude and nature of housing demand (*e.g.*, housing affordability, age trends, interest rates, etc.), two factors ultimately drive demand for housing: population and household growth (Jud, Benjamin and Sirmans, 1996; and Rosen, 1996). Both factors can be relatively easy to forecast, especially on larger geographic scales, because the long-term trends tend to be stable over time. Even regional and intra-regional movements tend to be slow and, for the most part, predictable. By comparison, demand for other property types, such as office and hotel, is more closely linked to the performance and health of the economy (Green Street, 2001), which is much more volatile than demographic trends.<sup>2</sup>

The predictability of demand is due in part to the numerous private, government and government-related sources that collect and report (or rely) on residential market information. Examples include the United States Census Bureau, HUD, FNMA, NMHC, GNMA, FHLMC and the Federal Reserve, just to name a few. With data readily available, household growth can be forecast down to the Metropolitan Statistical Area and even county level. This is in contrast to most other property types, like retail, where the analysis is much more complicated and the quality and availability of data can be limited. From an investment perspective, the more predictable demand for apartments allows for easier and more accurate forecasts of property performance, and less variability in overall market conditions.

Demand for apartments is inherently more fluid than that for most other property types, since apartment demand comes from a broader and generally more mobile tenant base.<sup>3</sup> For example, a large apartment community may have hundreds of tenants, while a suburban office, industrial or retail property is likely to have far

fewer. Moreover, apartment tenants typically are employed by a broad range of industries and represent a wide range of age groups and different cultural and social groups as well. Office tenants, on the other hand, often cluster together by industry, attracted by benefits of agglomeration. As the recent rapid decline in the San Francisco office market demonstrates, this tendency can have potentially severe adverse effects on a market or submarket if the primary industry falls on hard economic times. Certainly, a rapid decline in the office market caused by a decline in office employment would be felt in the apartment sector as well, but it is a matter of degree.

The more fluid demand base for apartments also means that apartments have a much higher annual turnover rate among tenants than other property types, with the obvious exception of hotels. The typical annual turnover rate in apartments is around 60% (Institute of Real Estate Management, 2000). By comparison, the annual turnover rate for an office building with twenty tenants on seven- to ten-year leases would likely be between 10% and 15%. Although the shorter lease terms for apartments are a primary factor in the higher turnover rate, higher levels of tenant improvements and customization in other property types, such as office and retail, are also important since tenants with a higher degree of customized space will have a greater tendency to renew their leases. Given the relatively high turnover, success in apartment investment is highly dependent on competitive positioning, management and marketing.

One direct consequence of the more fluid demand and higher turnover rates for apartments is that apartment investments tend to react more quickly to changing market conditions.<sup>4</sup> This could be viewed as being either a positive or a negative attribute since it suggests that apartment rents can fall if market conditions deteriorate just as easily as they can increase in an improving market. However, if demand for apartments is more predictable and if supply is more responsive to downturns, then the relatively quick reaction time should be a positive feature of the property type since downside risk is mitigated by the balanced supply and demand fundamentals.

Apartment investments are also believed to have a number of stabilizing attributes with respect to supply. Construction lead times for apartment projects, for example, are generally assumed to be shorter than those for most other property types, offices in particular. This feature is often cited as an important factor in the responsiveness of the apartment space market to changes in market conditions, which helps keep supply and demand in balance (Green Street, 2001).<sup>5</sup> Although it is somewhat hard to generalize, the typical time required for the physical construction of a suburban apartment community ranges from twelve to eighteen months, roughly the same amount of time required to construct a suburban office building of similar investment value. However, while the advantages of apartment construction lead times may be overstated, many apartment developments do offer the ability to begin leasing units as they are delivered during the construction phase, often allowing developers and investors to begin earning income before a project is fully completed. Also, if the demand for the property is found to be

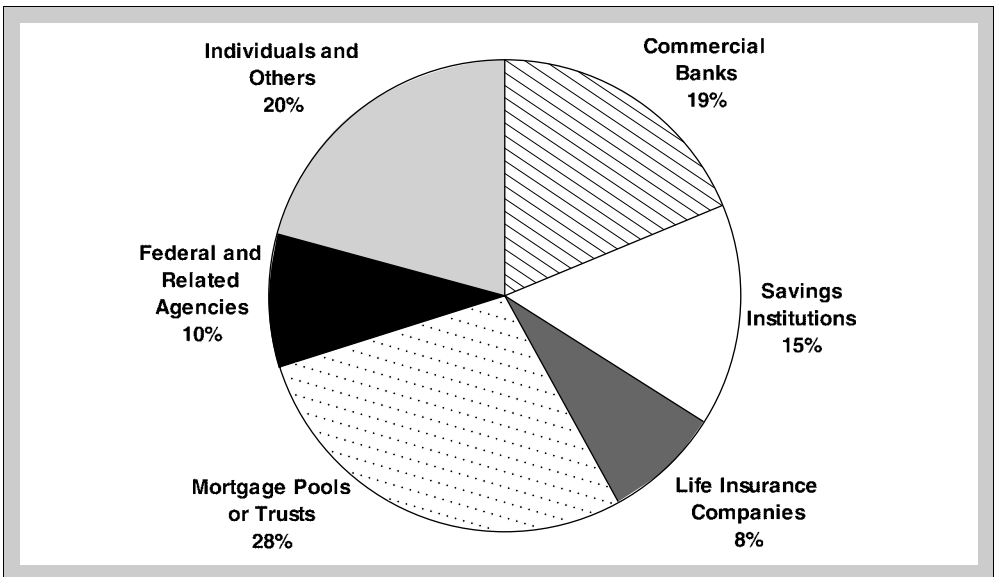
weaker than projected, development often can be scaled back and completed in phases as demand warrants.

Apartments may even have a relative *disadvantage* with respect to construction time because the planning and permitting process tends to take longer than for other property types.<sup>6</sup> Often, the optimal location for apartments occurs where development is the most difficult—near luxury single-family homes or in areas that historically have supported non-residential land uses, for example. Office and industrial projects are more likely to be built in an area consistent with the proposed product type, and therefore are likely to meet with less local resistance. At the same time, however, the more challenging approval process can significantly increase the value of existing properties and development projects that have been approved but have not yet been built.

### Capital Flows

The stability in the demand and supply of apartments is closely related to the stable flow of capital to the apartment sector and the availability of financing. Apartments benefit from a wide variety of financing market participants, more so than for any other sector. As shown in Exhibit 1, the wide distribution of debt market participants leads to more stable availability of capital, and thus more

**Exhibit 1** | Multifamily Mortgage Debt Outstanding, 2000



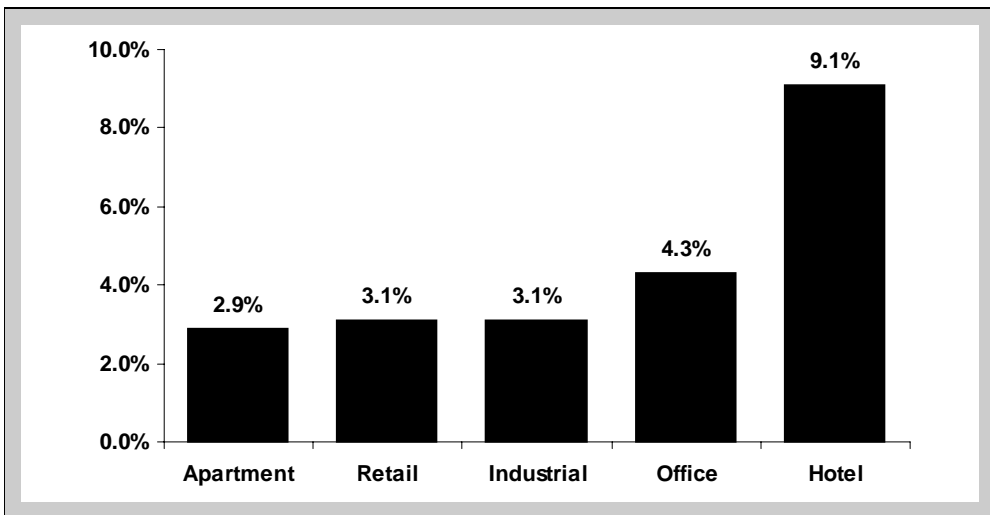
Sources: Housing Statistics of the United States, Fourth edition, 2001; Prudential Real Estate Investors.

liquidity and stable investment values. This can be important going forward. As noted in Geltner and Miller (2001), the traditional sources of capital dried up during the real estate market recession of the early 1990s. The emergence of the REIT and CMBS markets helped power the recovery. Notice also that apartments, unlike other property types, benefit from a large pool of agency lending. This has further promoted the stability of capital in this sector, but poses a potential risk if it were to disappear or diminish significantly.

Aggregate capital availability is difficult to accurately measure. Geltner and Miller (2001) note that the initial LTV ratio is most important underwriting guideline as it takes into account asset valuation and income coverage. As such, it can be inferred that changing levels of their underwriting criteria reflects information about the relative ease or tightness of commercial credit. In other words, when average initial LTV rates are high, financing is “easier” and when initial LTV ratios are low, financing is more “tight.” While at different points in the real estate cycle lenders have favored certain sectors (in terms of LTV rigidity); apartments underwriting standards have remained more stable as evidenced by the low relative LTV volatility over time, measured by the standard deviation in their LTV ratios (see Exhibit 2).

While this metric is only suggestive, the flow of capital to the apartment sector appears to be relatively stable, which helps keep supply and demand in balance and leads to a more stable investment market. This stability may help create liquidity over time by reducing the risk that capital will become too constrained.

**Exhibit 2** | Historical LTV Volatility by Sector



Sources: American Council of Life Insurers (ACLI), quarterly frequency, 1Q82-3Q00; Prudential Real Estate Investors.

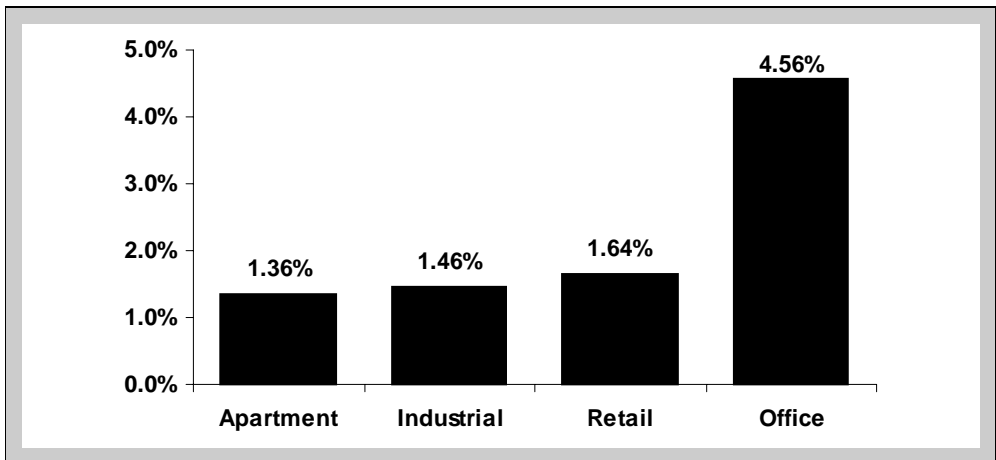
### Stability Test—Space Market and Investment Performance

If apartment properties truly do have intrinsic qualities that make their property and capital markets comparatively more stable than the other property types, the volatility of apartment markets and investments should be lower. Exhibit 3 shows the vacancy volatility for the major property types, with the exception of hotels.

Apartments have the lowest vacancy volatility among the four property types shown in Exhibit 3, indicating that underwriting should be easier for apartment properties than for the other property types, especially the office sector. This is important as numerous studies across various property types suggest the existence of a natural vacancy rate.<sup>7</sup> Deviations from this natural vacancy rate are quality predictors of real rent changes, which lead to valuation changes and subsequent construction decisions. The less volatility in vacancy, the less severe will be the deviations from the natural vacancy rates, and therefore less variations in rent and less severe risks of overbuilding. Apartment deals, therefore, are more likely to be underwritten appropriately, which should lead to more stable total return performance. However, more stable performance does not necessarily imply the best absolute performance. In fact, less risk generally implies lower returns. Of greater importance from an investment perspective is whether or not apartments are able to obtain greater risk-adjusted returns than other property types.

Exhibit 4 shows the mean quarterly returns for the major property types, as well as the corresponding total return volatilities and the risk-adjusted returns for each

**Exhibit 3** | Historical Space Market Volatility by Sector



Sources: REIS Reports, Inc., annual frequency, 1980–2000; Prudential Real Estate Investors.

**Exhibit 4** | Mean Quarterly Performance

	Index	Apartment	Hotel	Industrial	Office	Retail
Average Quarterly Return	2.14	2.58	2.16	2.30	1.95	2.16
Std. Dev. (Risk)	1.70	1.44	2.92	1.65	2.60	1.59
Return to Risk	1.26	1.79	0.74	1.39	0.75	1.36

Notes: The index for the hotel sector did not begin until 1980:4. The sources are the National Council of Real Estate Investment Fiduciaries, quarterly frequency, 1980:1–2000:4; Prudential Real Estate Investors.

property type. The results show that the apartment sector, while a modest performer in terms of total return, has performed very well on a risk-adjusted basis (*i.e.*, by return per unit of risk or total return divided by standard deviation).

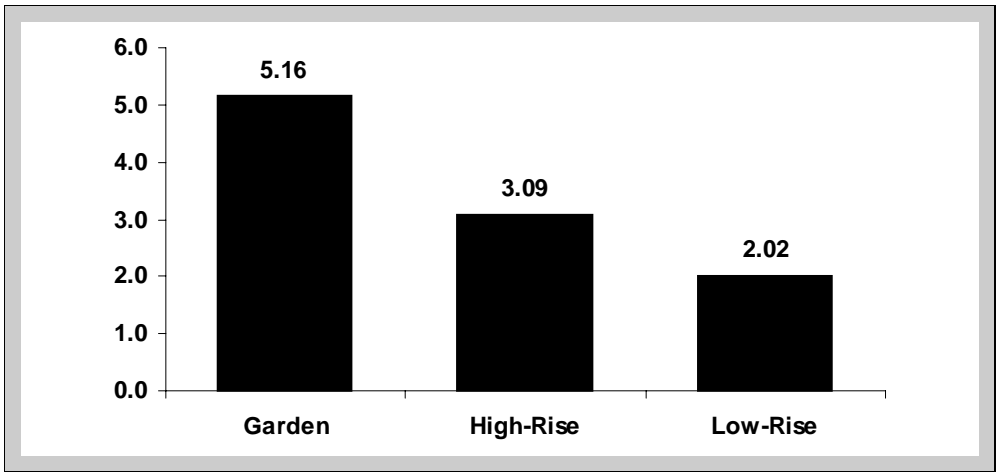
Going forward the ability to continue to achieve excessive risk-adjusted returns goes against market efficiency arguments. In particular, as investors see the relatively high risk-adjusted returns that the apartment market has offered, investors would overweight the sector, bid up prices and drive down returns such that risk-adjusted returns will tend to equalize in the long run. Certainly, this represents a risk in the current market environment. The aforementioned industry outlook reports tend to suggest that past performance is representative of future performance. With the current interest in the sector, apartments could be at risk of underperforming if market efficiency arguments hold.

Within the apartment sector, historical performance across regions and types has varied widely (Goodman, 1999). Exhibit 5 shows that on a risk-adjusted basis, garden-style apartments substantially outperformed other apartment categories by a wide margin, while on a regional basis, the South realized the best risk-adjusted returns over the six-year period from 1994 through the first quarter of 2001 (see Exhibit 6). Due to data limitations, this time series was restricted, and as such, caution should be exercised when examining these numbers.

## Portfolio Diversification

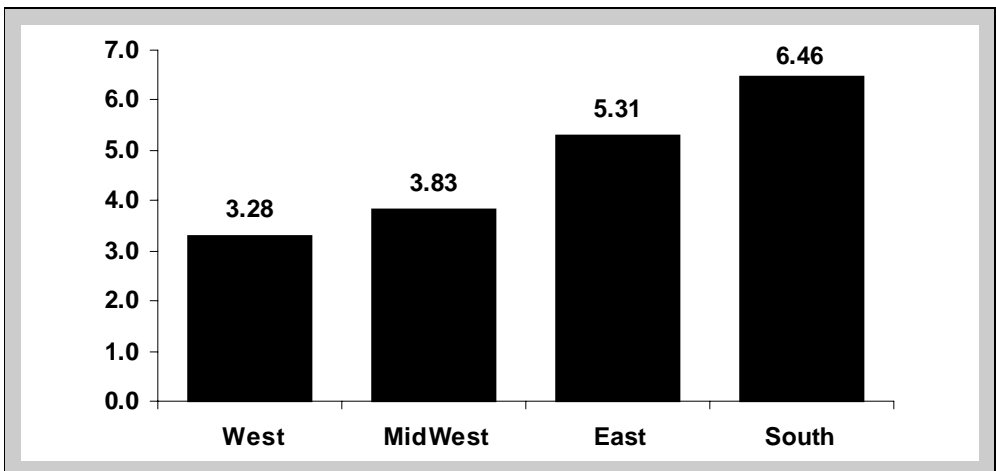
When examining the portfolio diversification of a particular asset, investors try to find assets that have a low correlation with other components of the portfolio. In fact, modern portfolio theory suggests that when assets that are less than perfectly positively correlated are combined into a portfolio, there are risk reduction benefits, and that the risk reduction benefit increases as the correlation becomes smaller and approaches negative one (Brigham and Houston, 1998). To examine

**Exhibit 5** | Return to Risk by Apartment Type



Sources: NCREIF, quarterly frequency, 1994:1–2001:1; Prudential Real Estate Investors.

**Exhibit 6** | Return to Risk by Apartment Region



Sources: NCREIF, quarterly frequency, 1994:1–2001:1; Prudential Real Estate Investors.



the potential diversification benefits of apartments relative to other property types, the cross correlations between the returns for the major property types are shown in Exhibit 7. As the exhibit shows, apartments fall in the middle, having lower average cross correlations than office and industrial, but higher cross correlations than retail and hotel.

To further test the diversification benefits of apartments, the performance of each of the sectors was examined during years in which the U.S. economy was weak (*i.e.*, GDP growth was below median from 1980–2000). As shown in Exhibit 8, when the economy is performing poorly, apartment returns historically have exceeded returns for other property types by a wide margin. While this relationship could change in the future, the disparity in performance underscores the notion that the investment performance of apartments is less closely correlated with the performance of the overall economy than that of the other property types.

### Liquidity

Within the private real estate investment asset class, apartments generally are perceived as being more liquid than the other property types. Factors such as the availability of capital, typical investment size, investment turnover rates and overall institutional acceptance have all contributed to this perception.

### Investment Size

According to the Institutional Real Estate Universe database, the average price paid in apartment transactions during the past year was \$36.2 million, less than half the average price in transactions involving office properties (Exhibit 9). Only industrial properties had a lower average transaction price, at \$26.3 million.

**Exhibit 7** | Return Cross Correlation Matrix

	Apartment	Hotel	Industrial	Office	Retail
Apartment					
Hotel	0.31				
Industrial	0.70	0.34			
Office	0.66	0.40	0.89		
Retail	0.52	0.05	0.64	0.54	
Average	0.55	0.27	0.64	0.62	0.44

*Notes:* The sources are NCREIF (1980:4–2000:4) and Prudential Real Estate Investors.

**Exhibit 8** | Performance during “Bad” Economic Times

	Index	Apartment	Hotel	Industrial	Office	Retail
Average Quarterly Return	1.98	2.40	2.15	2.09	1.80	2.01
Std. Dev. (Risk)	1.90	1.59	3.58	1.74	3.00	1.52
Return to Risk	1.04	1.51	0.60	1.20	0.60	1.32

Source: NCREIF (1980:1–2000:4); Economy.com; Prudential Real Estate Investors.

While the sample size is admittedly small, these numbers are representative of the relative sizes of the transactions by sector type, and suggest that apartment investments typically fall at the lower end of the range in terms of the average size of the investment. Smaller average deal size may allow more potential investors to participate in transactions, thus increasing the efficiency, competitive structure and liquidity of the market relative to the market for larger transactions.

### Higher Investment Turnover Ratios/Shorter Holding Periods

The apartment sector has exhibited a consistently high level of transaction activity. According to the Institutional Real Estate Universe database, the total transaction volume in the apartment sector from 2000:3 to 2001:2 was \$7.6 billion, second only to the \$28.4 billion in transaction volume for the office market. The next highest sector in terms of total transaction volume was retail with \$4.4 billion (see Exhibit 10).

A recent study of properties in the NCREIF database found that apartments had the shortest average holding period, at just over six years, of all the major property types (Fisher and Young, 2000). The authors hypothesize that the differences may be attributable to higher liquidity and lower transaction costs, and note that apartments tend to be a more homogeneous property type, which may also contribute to higher liquidity. By comparison, there is a much wider spectrum of properties within the retail, industrial and office product types than there is in apartments.

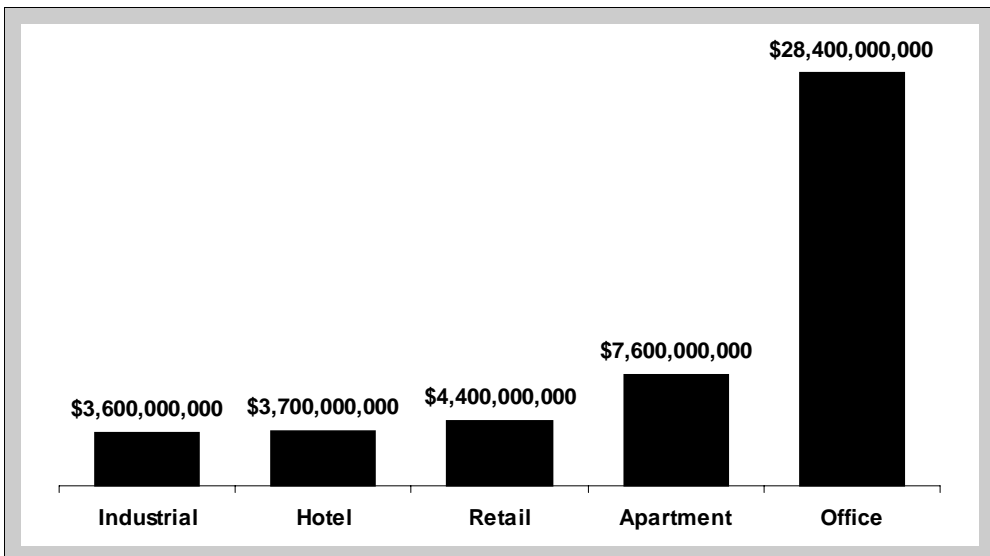
Additionally, according to the Korpacz Real Estate Investor Survey, 2001:2, the average marketing time for an apartment complex was only 5.8 months, the lowest average for all property type sectors (see Exhibit 11). The short average marketing time is a direct result of the current institutional appetite for apartments and relatively small size of apartment transactions, and gives a good current indication of relative liquidity.

**Exhibit 9** | Average Investment Sizes (2000:3–2001:2)

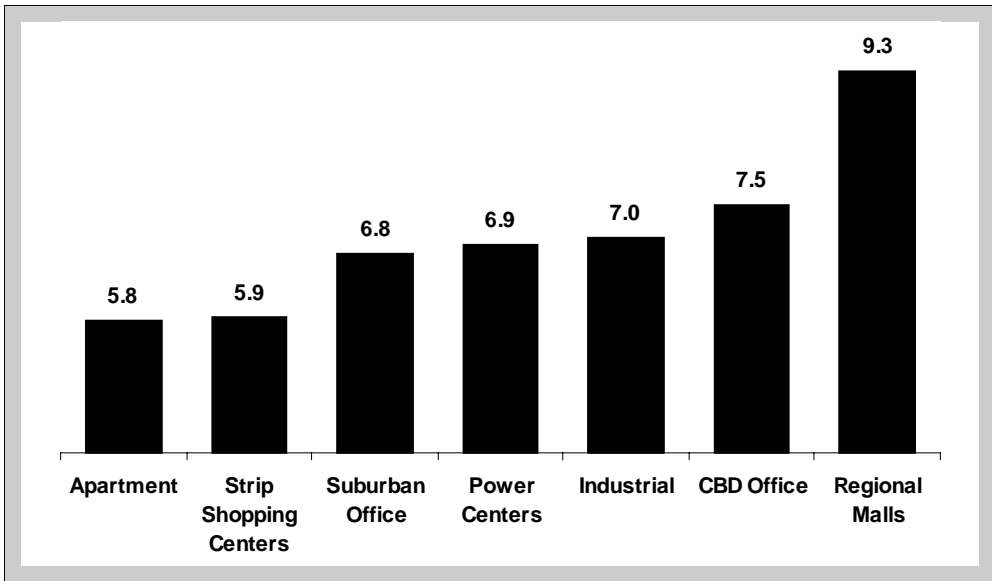


Source: Institutional Real Estate Universe Database, Institutional Real Estate, Inc.

**Exhibit 10** | Total Transaction Volumes (2000:3–2001:2)



Source: Institutional Real Estate Universe Database, Institutional Real Estate, Inc.

**Exhibit 11** | Average Marketing Time (# of months)

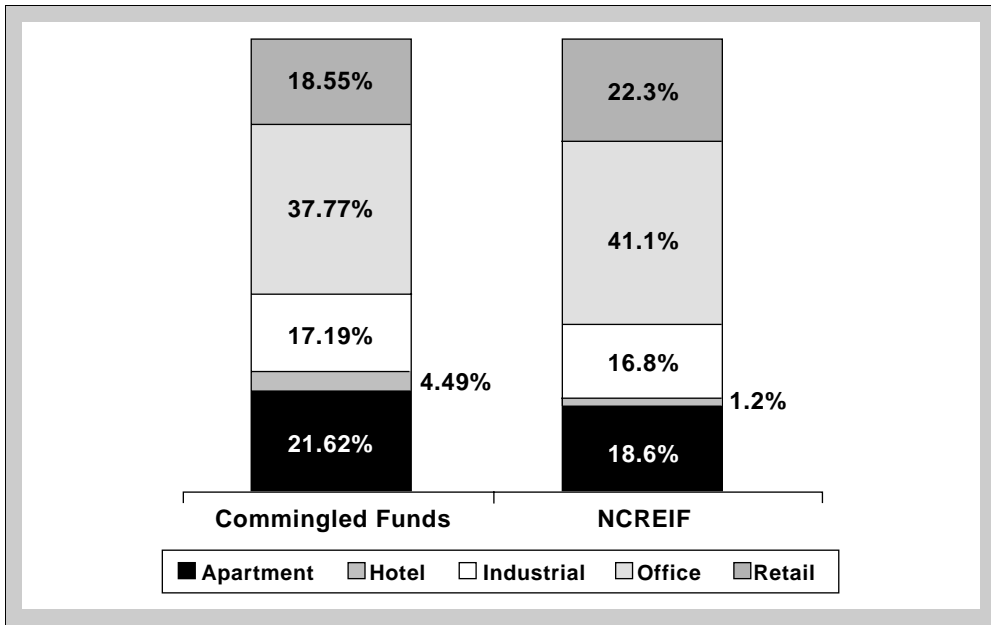
Source: Korpacz Real Estate Investor Survey, Second Quarter 2001.

### High Degree of Institutional Acceptance

According to a sample of nine of the largest commingled funds, representing almost \$21 billion in gross assets, apartments account for 22% of total assets, and are second only to the office sector, which accounts for 38% of total assets. Apartments also rank second in the distribution of properties in the NCREIF Index, which had a total value in 2001:1 of almost \$100 billion, accounting for just under 19% (Exhibit 12).

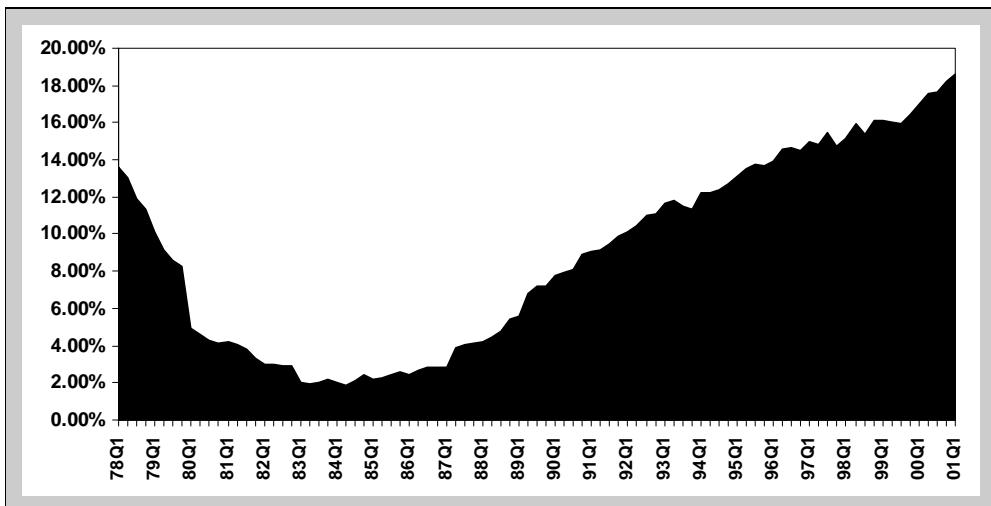
While institutional investors have invested in apartments since the earliest stages of their involvement in the real estate asset class, interest in the sector has increased more or less steadily since the mid-1980s.<sup>8</sup> Exhibit 13 shows the sector's share of the NCREIF Index since the property database was created in 1978, and illustrates the dramatic climb in the popularity of apartments among institutional investors over the last twenty years. (The apparent decline in the apartment sector's share of the Index between 1978 and the mid-1980s is primarily a function of the growth of the Index itself rather than an actual decline in institutional ownership of apartments.) As recently as 1985, apartments accounted for less than 3% of the Index. Today, apartments represent approximately 19% of the Index. Given the current popularity of the sector and the favorable outlook for apartments over the coming decade, this ratio will continue to increase, at least in the near-term.

**Exhibit 12** | Sample of Current Institutional Allocations



Sources: NCREIF (2001:1); Prudential Real Estate Investors

**Exhibit 13** | Institutional Allocations to Apartments over Time



Sources: NCREIF; Prudential Real Estate Investors.

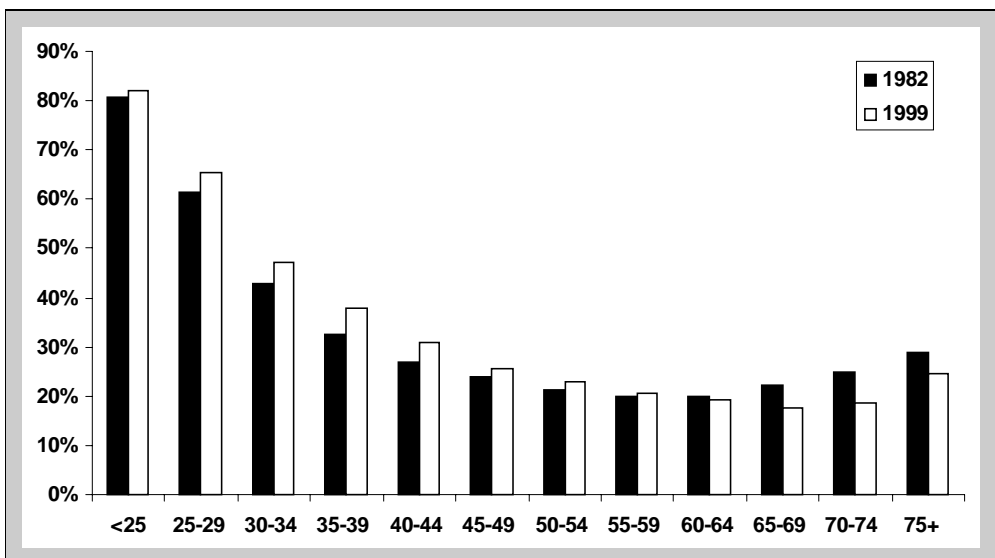
## Market Timing and Current Outlook

Perhaps the most popular and compelling argument for investing in apartments is based on the current demographic trends in the U.S. While the trend in overall population growth in U.S. has been relatively stable over time, the demographic profile of the population features several pronounced population waves that are powerful drivers of real estate demand. Three waves in particular—the baby boomers, their children (the echo boomers) and the elderly—will exercise tremendous influence on the demand for housing of all types in the coming decade, but are particularly relevant to the demand for rental housing (Liang and Conner, 2000).

To understand the potential impact of these population waves on the potential demand for apartments, it is first necessary to understand some basic elements of rental demand. Exhibit 14 illustrates the trend in renting versus homeownership among various age cohorts over the time period 1982 through 1999. Not surprisingly, the primary renters are the younger segments of the population. The propensity to rent falls steadily as people age and choose to own homes rather than rent until around the age of 60 to 65, when this trend starts to plateau before beginning to rise again.

Because the trends in homeownership among different age groups have remained relatively constant over time, a forecast should be able to be made of the demand

**Exhibit 14** | Renter Ratios across Age Cohorts and Time

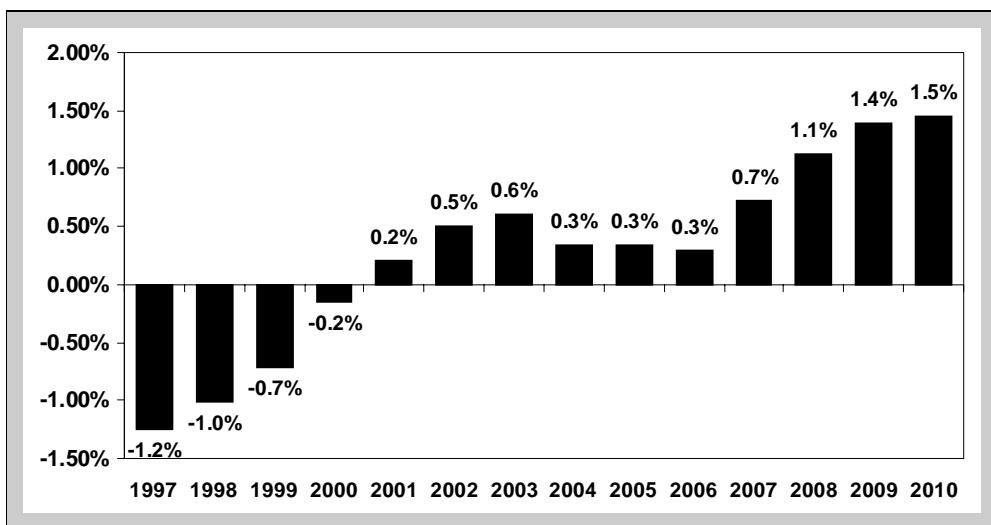


Sources: US Bureau of the Census; Prudential Real Estate Investors.

for both homeownership and rental apartments using the readily available forecasts for population by age. As shown in Exhibit 15, the age group that is most likely to rent housing—the 20- to 34-year-old segment of the population—will experience significant growth during the next twenty years, providing a strong demand base for apartments. Most of the growth in this age cohort will come from the echo boomers, as they begin to enter the workforce in large numbers. This segment of the population will slowly rebound from declines during recent years, and will experience strong growth during much of the next decade. Over the longer term, there will be two cycles of robust growth among this age group over the next half century, with peaks occurring in the 2005 to 2015 time period, and then again in the 2030 to 2045 time period (see Exhibit 16).

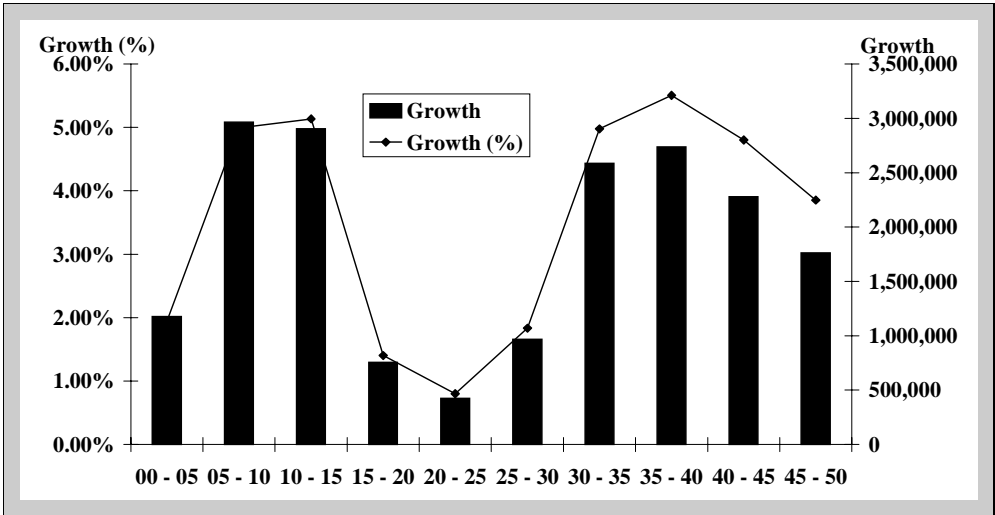
While these results are based on older Census data and projections, the preliminary results from the Census 2000 survey indicate that current projections are more likely to understate than overstate the potential demand for apartments. The Census 2000 results for total population indicate that the population increase from 1990 through 2000 was the largest in U.S. history in terms of absolute numbers. The population grew by 32.7 million people during the last decade, much higher (in terms of absolute numbers) than the next largest gain of 28 million during the baby boom of the 1950s. The most rapid rates of growth occurred in metropolitan areas, which as a whole grew 13.9%. Non-metropolitan areas grew at a slower pace, increasing by 10.2% over the past decade. Because renter ratios are higher in metropolitan areas, the trend toward urbanization bodes well for apartment markets.

**Exhibit 15** | Annual Growth in the Primary Renter Age Cohort (20–34)



Sources: U.S. Bureau of the Census; Prudential Real Estate Investors.

**Exhibit 16** | Primary Renter Age Cohort Cycles



Sources: U.S. Bureau of the Census; Prudential Real Estate Investors.

The 2000 Census also highlights at least three important trends that support expectations of strong demand for rental housing in the coming decade. First, the U.S. population is clearly becoming more ethnically diverse. Second, there has been considerable growth in “non-traditional” households. As shown in Exhibit 17, both of these segments of the population have a relatively high propensity to rent. Lastly, much of the population growth in the U.S. in recent years has come from immigration. Recent immigrants tend to locate in metropolitan areas and also have a higher propensity to rent.

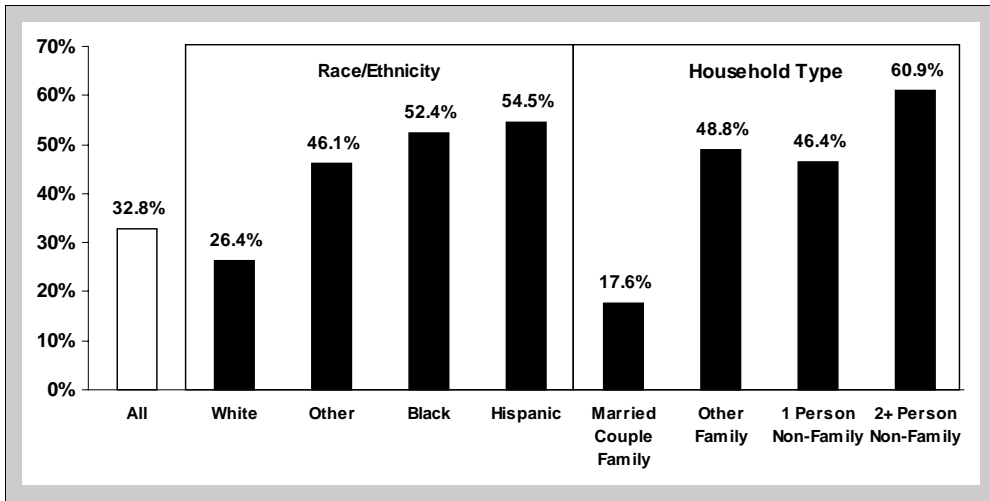
### Risks

The near-term outlook for the apartment sector is not without risks. If nothing else, the almost universal strong interest in apartment investments raises concerns that too much capital could flow into the sector and jeopardize the balanced capital market fundamentals that are so important to the sector’s attractiveness.

The increased weakness in the economy exacerbates the growing concerns in the nation’s employment outlook. Announcements of layoffs have increased sharply in the past couple of years, particularly in those sectors of the economy that were directly affected by terrorist attacks—airlines, lodging and other travel-related businesses, and financial services, for example. Although some markets will undoubtedly suffer more than others, the impact of the weaker economy and employment outlook on the overall apartment market is likely to be mixed. Layoffs clearly have the potential to reduce effective demand for apartments, especially



**Exhibit 17** | Propensity to Rent by Race and Household Type, 2000



Sources: Housing Statistics of the United States, Fourth edition, 2001; Prudential Real Estate Investors.

from younger workers and recent college graduates who may choose to live at home while looking for jobs instead of paying rent on an apartment. At the same time, however, the threat of layoffs is also likely to adversely affect demand for homes by making would be first-time buyers reluctant (or unable) to commit to home ownership.

Other risks range from the increased uncertainty about attitudes towards urban living, particularly in high-rise structures, to potentially more restrictive immigration policies. At this point, it is still too early to speculate how these additional concerns will affect demand for apartments, and other factors, such as the success and duration any military campaign and where corporations choose to locate offices, will be central to how these issues are resolved.

## Conclusion

The empirical evidence seems to support many of the advantages attributed to apartment investments relative to other property types. The relatively low space market volatility and higher risk-adjusted returns suggest that the apartment sector's more predictable and diversified demand base, more responsive supply and stable flow of capital, do indeed appear to make the apartment market more efficient and less susceptible to sharp cyclical variations than other property types. At the same time, the modest cross correlation of apartment returns with those of other property types and high risk-adjusted performance in poor economic times suggests that apartments can provide significant portfolio diversification benefits. This feature is particularly attractive in the current economic environment, since

apartments historically have outperformed other property types during years in which the U.S. economy was weak. Apartment investments also appear to be more liquid than other property types, as evidenced by the lower average marketing times and higher average turnover rates. These features, combined with the attractive demographics and space market fundamentals, suggest that the current environment should be favorable for apartment investing. Overall, apartments seem to be defensive plays with smaller downside risk than other property sectors.

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## Endnotes

- <sup>1</sup> For example, see Goodman (1999), Lend Lease (2000), Property and Portfolio Research (2000), McDonald Equity Research (2000), Shoptaw and Garrard Real Estate Investment (2001) and SSR Realty Advisors (2001).
- <sup>2</sup> It should be noted, however, that the industrial sector, the healthcare sector and neighborhood centers have less correlation with GDP than the apartment sector (Green Street, 2001).
- <sup>3</sup> This increased fluidity has both pros and cons, which are subsequently examined.
- <sup>4</sup> Multi-family starts have been shown to lead the downturns and come back in tandem with recoveries (Jud, Benjamin and Sirmans, 1996).
- <sup>5</sup> Industrial properties are also stable due to short construction times.
- <sup>6</sup> Of course, this could be an advantage to investors if the barrier acts as an effective supply constraint.
- <sup>7</sup> For example, see Shilling, Sirmans and Corgel (1991), Jud, Benjamin and Sirmans (1996) and Hendershott (1995), just to name a few.
- <sup>8</sup> See Rosen (1996) for a discussion of how regulatory changes have played a role in increasing institutional holdings of apartments.
- <sup>9</sup> The index for the hotel sector did not begin until 1980:4.

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