Apartments:
Fairly Priced to Deliver Moderating but Favorable Risk-Adjusted Returns — Spring 2005

BLACKROCK

Introduction

The apartment sector has outperformed all other major property types over the last two decades on both an absolute and a risk-adjusted return basis. In part because of this historical performance, investors have steadily increased their allocations to the sector over this same period. In recent years, as the apartment space-market suffered under a recessionary economy and record-low interest rates (which facilitated rising homeownership), investor demand for apartments remained robust and even strengthened, resulting in strong capital inflows to the sector.

This flood of capital, which was further supported by low interest rates and a general flight to lower-risk assets, has helped sustain steady growth in apartment property values and provided a substantial boost to total returns. Rising property values, coupled with weak earnings, have resulted in a decline in apartment cap rates to record lows. Given current cap rates, rising interest rates and the still-recovering space market, some investors are increasingly concerned about the possibility of a decline in apartment values precipitated by a rise in cap rates. In turn, this would result in poor return performance for the sector.

This paper explicitly assesses current apartment pricing in a fair pricing framework. Each of the key variables that impacts pricing is assessed in detail: interest rates, the apartment sector risk premium, earnings growth and the risk of cap rate shifts. Our conclusion is that apartments are fairly priced and are expected to deliver moderating but attractive risk-adjusted returns. Apartments are expected to continue to produce alpha, although excess returns will not be as outsized relative to the NCREIF Property Index (NPI) as in the past. We view this as a natural outcome of a more efficient market that is pricing the apartment sector more consistently with its lower observed historical risk. As such, we view the decline in apartment cap rates as a rational re-pricing of the sector given its strong historical performance, low relative risk and continued low capital requirements, which allow the sector to produce equivalent cash yields with lower cap rates as compared to other sectors. Overall, the risks of a significant fall in property values and ensuing sharp rise in apartment cap rates are low in our view.

Going forward, apartment-sector fundamentals should benefit from cyclical and structural trends. Strengthening labor market conditions coupled with increased household formation, favorable demographic trends ("echo boom" cohort entering renting years) and the decline in single-family housing affordability should all support demand for apartments. Given that supply remains relatively in balance, vacancy rates are expected to edge down, and rent and earnings growth should pick up significantly. Returns are expected to be increasingly driven by earnings growth, as the gains from falling cap rates subside and potentially reverse modestly over time as earnings growth outpaces growth in property values.

Executive Summary

- The apartment sector has outperformed all other major property types over the last two decades on both an absolute and a risk-adjusted return basis.
- Rising property values, coupled with weak earnings, have resulted in a decline in cap rates to record lows.
- This paper assesses current pricing by looking at each of the factors that drive pricing: interest rates, risk premium, earnings growth and cap rates.
- Our conclusion is that apartments are fairly priced and are expected to deliver moderating but attractive risk-adjusted returns.
- Apartments are expected to continue to produce alpha, although excess returns will not be as outsized relative to the NPI as in the past.
- The risk of a significant fall in property values and ensuing sharp rise in apartment cap rates is low in our view.
- Strengthening labor market conditions, coupled with increased household formation, favorable demographic trends and the decline in single-family housing affordability should all support demand for apartments.
- Returns are expected to be increasingly driven by earnings growth, as the gains from falling cap rates subside and potentially reverse modestly over time as earnings growth outpaces growth in property values.

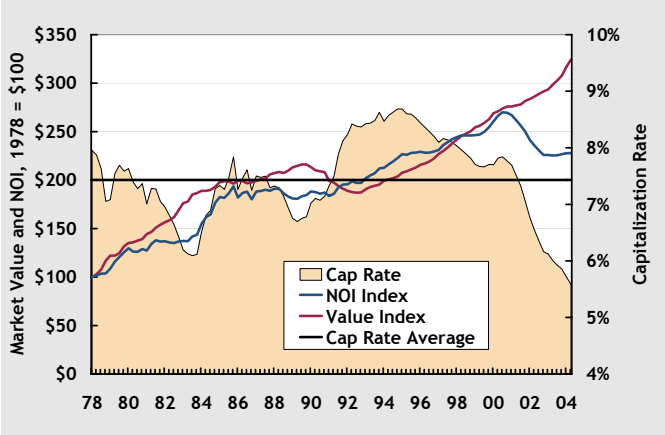
Table of Contents

Current Pricing

It is undeniable that current apartment cap rates are low compared to history and compared to other property sectors. NCREIF implied apartment cap rates[1] fell to a record low of 5.6% in the first quarter of 2005 (about 120 basis points below the overall NPI). Recent transactional cap rate data[2] from Real Capital Analytics present a similar picture, with average apartment cap rates of about 6.5%—more than 100 basis points below other major sectors. Dividend yields paint a very different picture. Since the apartment sector has substantially higher payout ratios than other property types, the dividend yield for the apartment sector is more clearly in line with other property types.

The confluence of rising property values and a decline in earnings since 2001 has led to the steady decline in apartment cap rates over the last several years. NCREIF implied apartment cap rates have declined by about 225 basis points over this period. This is demonstrated in Exhibit 1, which provides an index of earnings, market values and cap rates since 1978.

Exhibit 1: NCREIF Apartment Subindex: Cap Rates v. Market Values and Rescaled NOI, 1978=$100 (1978 – 2005Q1)



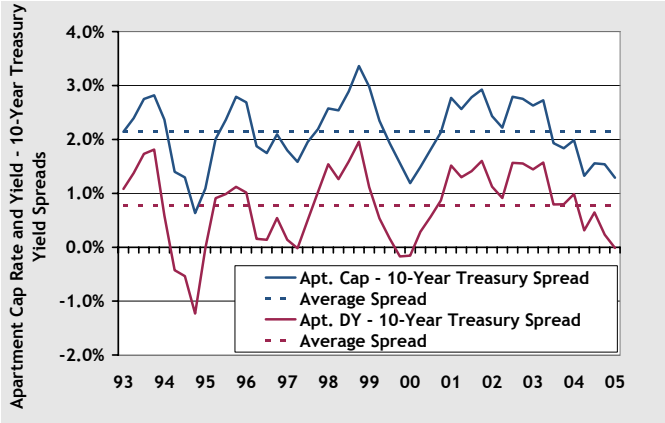
Source: NCREIF

Since values have continued to rise despite the recent downturn in property earnings, this implies that investors have largely treated weak space-market fundamentals as temporary. Indeed, investors did not only discount weakness in apartment sector space-market fundamentals, but were quite aggressive in allocating capital to the sector. This occurred in an environment that was generally characterized by a shift to lower-risk assets classes. Reflecting this trend, real estate transaction volume surged in 2004. Last year, total transaction volume climbed by more than 50% to a record $179 billion, according to Real Capital Analytics. Volume in the apartment sector jumped 64% last year to a record $48.1 billion, accounting for 64% of the rise in total real estate transaction volume. The assumption that the downturn in earnings would be temporary appears to be correct, as apartment earnings have apparently stabilized and are edging up.

Another important factor during this recent period of declining cap rates is that interest rates have generally trended down. From early 2000 through the end of 2004, the yield on 10-year Treasury bonds fell by approximately 230 basis points. As such, the cap rate spread over long-term risk-free bonds has remained within historical norms. Since the early 1990s, the apartment cap rate spread over the 10-year Treasury yield has fluctuated between 100 and 300 basis points, averaging about 200 basis points. The current spread is approximately 130 basis points (see Exhibit 2).

The same can be said for apartment dividend yields. The apartment dividend yield spread over Treasuries is currently about zero, but this is within its historically observed range of between -100 and +200 basis points since the early 1990s. This seemingly low yield premium reflects the ability of apartments (and other forms of income-producing real estate) to grow earnings, which compensates investors for assuming the additional risk over risk-free government securities.

Exhibit 2: Apartment Cap Rate and Dividend Yield Spread v. 10-Year Treasury Yield (1993 – 2005Q1)



Sources: NCREIF; Economy.com

Cash Flow vs. Earnings

Looking at dividend yields is more pertinent than cap rates based on earnings when comparing pricing between property sectors. The problem with using cap rates based on property earnings is that earnings are subject to "below-the-line" expenses, which vary considerably by property type and property cycle. These "below-the-line" expenses such as tenant and property improvements and leasing commissions, adversely influence the current cash available for distribution and, therefore, returns to the investor. This is of particular importance for the apartment sector because the sector requires substantially lower capital requirements than other property types, which results in a significantly higher dividend payout ratio (the ratio of available cash flow to earnings). The long-term average dividend payout ratio for the apartment sector is 82.3% compared to an average of only 67.5% for the other major property sectors. Higher payout ratios allow the

[1] NCREIF implied cap rates represent the ratio of one-year trailing earnings (NOI) over current value.

[2] Transactional cap rates represent the 1-year forward earnings over current value. Although NCREIF implied cap rates are measured on a trailing basis, they are lower than RCA's spot rates because RCA's universe of properties/transactions captures more non-core deals (many of which are in tertiary markets) that are excluded from the NCREIF index.

apartment sector to generate dividend yields equivalent to other property types with a much lower cap rate. The cap rate spread can be upward of 130 basis points (Exhibit 3).

Exhibit 3: Cap Rates vs. Dividend Yields

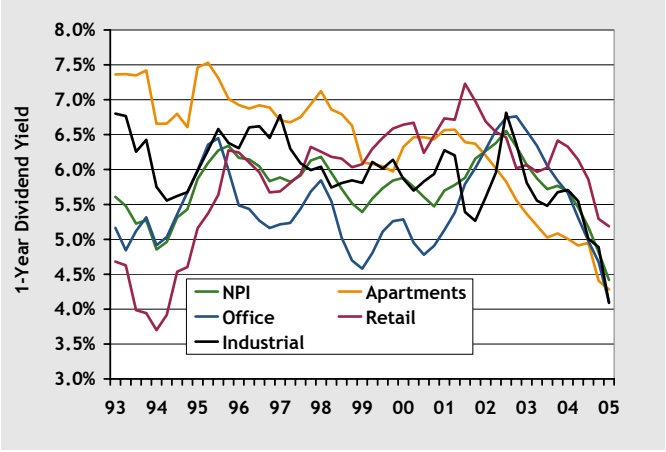
	Apartment Sector	Other Major Sectors*	Difference
Current Implied NCREIF Cap Rate	5.6%	7.0%	-1.4%
Long-Term Average Dividend Payout Ratio	82.3%	67.5%	14.8%
Computed Dividend Yield	4.6%	4.7%	-0.1%

*Average of the office, industrial and retail sectors

Source: NCREIF

As it currently stands, apartment dividend yields are only slightly below the overall NPI. All property sectors have been experiencing declining dividend yields recently, and there is currently very little difference between yields across property types (Exhibit 4). Dividend yields for office and industrial have actually fallen below the apartment sector's yield. Given the apartment sector's low historical volatility and the expectation of above-average earnings growth in the near term, an average dividend yield appears very reasonable. In fact, relative to other property types, apartments look quite attractively priced when comparing dividend yields, relative risk and potential earnings growth. Given that each property sector has a similar dividend yield (with the exception of retail) earnings growth will ultimately be a key differentiator of returns going forward. We believe that the apartment sector is poised to experience healthy earnings growth in excess of other property types, which makes current pricing relatively attractive. We will discuss earnings in more detail after assessing apartment pricing in a broader context by weighing current pricing against risk-free returns, risk, and earnings growth within a fair pricing framework.

Exhibit 4: NCREIF Dividend Exhibit 5: NCREIF Dividend Yields by Property Type (1993 - 2005Q1)



Source: NCREIF

Fair Pricing Model

Is today's apartment pricing fair? By fair, we mean that, given the current cap rate and expected earnings growth, an investor will be able to surpass or meet their required return hurdle if they buy today and hold for some horizon. For this analysis, we assume that the horizon is five years.

To answer this question, we compare returns derived from current cap rates and various assumptions regarding the risk-free rate, risk-premium and earnings growth. At first, within the fair pricing model (based on the dividend discount model), it is assumed that cap rates do not change over the period. The assumption that cap rates do not change over the period is clearly a strong one. However, we will address this issue within the context of the model by adopting a more conservative (higher) risk-premium than otherwise and then elaborate further by explicitly modeling a cap rate shift and discussing the risks of such an event in detail.

Following standard financial theory, a property's value is a function of its discounted future earnings. Similarly, a property's cap rate is the ratio of its one-year forward income over the property's current value. In equilibrium, this ratio should equal the required rate of return minus expected growth in earnings E[g]. The required rate of return is in turn a function of the risk-free rate (k_{rf}), which is a function of a real risk-free rate of return (r) and inflation expectations (E[p]), and a risk premium (δ). After manipulating the dividend discount model to represent current income (NOI_0) or the NCREIF implied cap rate (based on trailing earnings) and including a dividend payout ratio (DPR) term, the implied fair cap rate (CAP_e) is represented by Equation 1[3]:

$$1)\ CAP_e = \frac{NOI_0}{V} = \frac{((r + E[\rho]) + \delta) - E[g]}{(DPR)(1 + E[g])},$$

Or: Implied Fair Cap Rate = (Real Risk-Free Rate + Infl. Expectation + Risk Premium) -Exptd. Earnings Growth (Dividend Payout Ratio)*(1+Exptd. Earnings Growth)

Based on Equation 1, several—all else equal—relationships are clear:

- Higher real risk-free rates tend to lead to higher cap rates;
- Higher risk premiums tend to lead to higher cap rates;
- Higher real earnings growth tends to lead to lower cap rates;
- Higher dividend payout ratios tend to lead to lower cap rates.

These are general directional relationships and there is typically a lag between movements in these variables and actual cap rates because of market imperfections, changing factors over time and the smoothing effects of the real estate appraisal process. In any event, given current implied cap rates and the current risk-free rate, it is fairly straightforward to determine whether current cap rates are "fair" given various assumptions regarding forward-looking earnings growth and risk premiums. The key inputs to the model are the risk-free rate, the risk premium and expected earnings growth.

[3] *For a more detailed discussion of the dividend discount model and a derivation of this equation see Appendix A.*

The dividend payout ratio also plays a role in this analysis, but since its value is fairly stable we treat it as a constant. The above model assumes the market is in equilibrium. When the market is out of equilibrium, shifts in pricing or cap rates over the period also need to be taken into account. Current pricing is fair if today's forward cash yield plus expected earnings growth plus expected cap rate shift effects (E[Δ]) equals the required return:

2)

$$\frac{NOI_0}{V}(1+E[g])(DPR)+E[g]+E[\Delta]=((r+E[\rho])+\delta)$$

Or: in other words, expected return = required return

Equation 2 essentially says that in equilibrium, expected returns (which are a function of current cap rates/yields, expected earnings growth and expected shifts in cap rates) should equal required returns (which are a function of the real risk-free rate and a risk premium). Of these variables, we know the current cap rate/yield, the current real risk-free rate and inflation expectations (from Treasury Inflation Protected Securities). Given these known variables, the next step is to consider reasonable inputs for expected earnings growth, the risk premium and potential cap rate changes. Once these assumptions are formulated, it is fairly straightforward to evaluate current cap rates/pricing and determine if you are a buyer (expected return is > required return), a holder (expected return = required return) of seller (expected return < required return).

Exhibit 5 presents five-year expected total returns based on the current nominal risk-free rate of approximately 3.9% (yield on five-year Treasury bonds), the assumption that the apartment sector's dividend payout ratio averages 83% going forward (approximately its long-term average) for various assumptions about real estate's risk premium and its earnings growth. Highlighted cells represent scenarios in which the expected total return is equal or greater than the required return. For instance, if you believe the apartment sector should command a risk premium of 275 basis points over the risk-free rate (implying a required return of about 6.6%) and expect future earnings growth will be about 3.5%, the expected return implied by those assumptions and current cap rates is about 8.3%, thus current pricing is fair under that scenario and you are a buyer. As is evident in Exhibit 5, current apartment pricing is fair unless you believe that the apartment sector will suffer negative real earnings growth over the forecast period and you have a relatively high risk-premium (greater than 350 basis points). Incidentally, even if your risk premium is as high as 500 basis points, you can still achieve your required return given moderately positive real earnings growth. We believe that a reasonable risk premium for the apartment sector for the upcoming five-year period lies close to 275 basis points. Given our expectations for earnings growth over the next five years of approximately 3.5%, this puts current pricing in the fair territory (see circled area above in Exhibit 5). Thus, under this scenario, the 6.6% required return for the sector is more than achievable.[4] We will next evaluate each of the assumptions behind our baseline scenario.

The Risk Premium

Let us start with the key assumption on the left-hand-side of the fair pricing equation: the risk premium. There are several techniques available to compute forward-looking risk premiums for real estate: surveys of market participants, historical realized risk premiums, risk premiums from highly correlated equivalent corporate bond yield spreads, and models such as the CAPM. We view the systematic nature of the CAPM approach as useful and theoretically sound. The

Exhibit 5: Expected v. Required Returns—Implied Fair Pricing Model

5-Year Nominal Risk-Free Rate	3.9%	**Dividend Payout Ratio**	*83.0%*
5-Year TIPS Implied Expd. Inflation	*2.7%*	**Current Cap Rate**	*5.6%*
5-year TIPS Risk-free Real Return	*1.2%*	**Cap Rate Shift**	*0.0%*

	Real Estate Risk Premium (bps) and Required Return (%)												
	200	*225*	*250*	*275*	*300*	*325*	*350*	*375*	*400*	*425*	*450*	*475*	*500*
	5.9%	6.1%	6.4%	6.6%	6.9%	7.1%	7.4%	7.6%	7.9%	8.1%	8.4%	8.6%	8.9%

Earnings Growth	Nominal	Real	Five-Year Total Returns Based on Risk-Free Rate, Risk Premium and Earnings Growth and Cap Rate Shift												
	1.0%	-1.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
	1.5%	-1.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%
	2.0%	-0.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%	6.7%
	2.5%	-0.2%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%
	3.0%	0.3%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%	7.8%
	3.5%	0.8%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%	8.3%
	4.0%	1.3%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%	8.8%
	4.5%	1.8%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%
	5.0%	2.3%	9.9%	9.9%	9.9%	9.9%	9.9%	9.9%	9.9%	9.9%	9.9%	9.9%	9.9%	9.9%	9.9%
	5.5%	2.8%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%
	6.0%	3.3%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%

Scenarios in which expected return is greater or equal to required return.

Sources: NCREIF; Economy.com

[4] *For more details behind this forecast see: "Real Estate Outlook And Optimal Property Sector Allocations 2005-2009," BlackRock Realty, Winter 2005 available at http://www.ssrrealty.com/research.htm*

CAPM provides the framework to compute property sector betas based on the market index (the NPI).

As per the CAPM, an asset's required return (k_a) is a function of the risk-free rate (k_{rf}) and the expected excess return (over the risk-free rate) of the market index (k_m-k_{rf}). Based on estimates of the asset's or asset class' historical relationship with the excess return on the market (beta or ß), the asset is deemed to be more risky or less risky than the market index (see equation 3):

$$(3)\ k_a = k_{rf} + \beta(k_m - k_{rf})\ ,$$

Or: Required Return of Asset = Risk-Free Rate + Beta*(Market Return – Risk-Free Rate)

Using the CAPM with the NCREIF Property Index as the market index, we computed rolling five-year betas for the major property sectors over the last 20 years. The results, presented in Exhibit 6, are consistent with what could be expected—lower-risk property sectors have lower betas and higher-risk property sectors have higher betas. For the apartment sector, the average of the computed betas over the period is 0.63 with a standard deviation of 0.20. Over the most recent five-year period, the apartment sector's beta was slightly lower than its long-term average of 0.57.

Exhibit 6: Estimated NCREIF Property Sector Betas (1985 – 2004)

	Recent (5 years ending 2004)	Average (rolling 5-year 1995-2004)	Standard Deviation
Apartments	**0.57**	**0.63**	**0.20**
Office	1.28	1.35	0.21
Retail	0.99	0.79	0.34
Industrial	0.79	0.90	0.20

Source: NCREIF; BlackRock

The apartment sector's low computed beta is consistent with its lower historically observed standard deviation of returns. Not only has the apartment sector historically exhibited the lowest sector-level volatility in returns, but the standard deviation of returns between individual properties within the sector has also been the lowest. In other words, individual apartment property returns are more homogenous than other property sectors. This risk can be viewed as property selection or unsystematic risk—risk that is not explained by the overall risk of the sector. Combining these two risk factors makes investing in an apartment asset substantially less risky than investing in an asset within the other property types.

The low computed beta is also consistent with the apartment sector's relatively stable space-market performance over the long term compared to other property types. The apartment sector has had the lowest historical vacancy rate of all property types and low vacancy rate volatility. Volatility in apartment rent growth has also been low historically. Finally, the apartment sector has generated the strongest average rent growth over the last quarter-century. Overall, it is clear that the apartment sector has historically been the lowest-risk property type (see Exhibit 7), and this is reflected in its low computed beta.

Exhibit 7: Risk Metrics: Standard Deviation (1982 - 2004)

	Total Return (subindex aggregate)	Total Return (avg. std. dev. between properties)	Vacancy	Rent Growth
Apartments	**4.37%**	**10.28%**	**1.37%**	**1.89%**
Office	7.73%	14.50%	3.69%	4.37%
Industrial	5.68%	13.09%	1.27%	2.73%
Retail	5.57%	10.68%	1.63%	1.79%

Sources: NCREIF; REIS

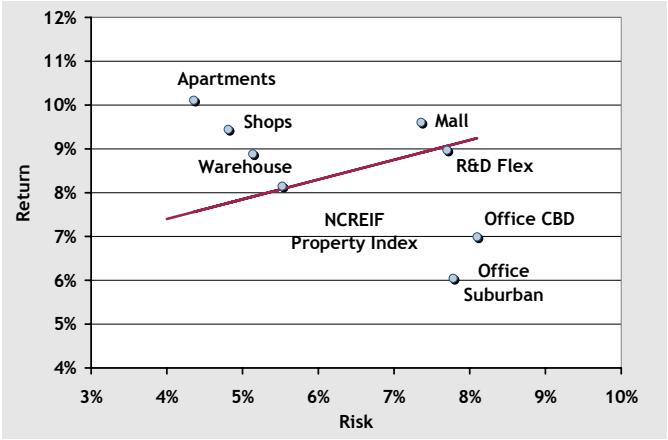
For a forward-looking risk-premium, it is necessary to make an assumption about whether the recent or long-term average betas are representative of the near-term future. For the purpose of this analysis, we adopt a more cautious view than the CAPM model would imply by assuming that the apartment sector's beta and risk premium will be higher going forward than historically observed. This is due to the fact that it is unlikely that we are currently in equilibrium, and there is likely risk of rising cap rates, which is otherwise not explicitly captured in the fair pricing model presented above. As such, if you assume the apartment sector's beta will be about one standard deviation higher than its long-term average (which could be viewed as a very conservative assumption), this equates to a beta of approximately 0.83 and implies that the apartment sector's risk premium will be somewhat higher than recent years, but will remain well below 1.0.

To this effect, we expect that overall core real estate returns (NCREIF Property Index) will moderate to levels more consistent with long-term averages of approximately a 5% real return over the next five years. Specifically, we expect that the NPI will produce a five-year return of about 7.5% (5% real + 2.5% inflation). This forecast implies a real estate risk premium of about 350 basis points over the equivalent current five-year risk-free rate. Over the long term, the realized real estate risk-premium has been substantially smaller (almost zero) due to the fact that falling interest rates have provided excess bond returns over their yield. Going forward, bond returns over the next five years are expected to be closer to their yields (compared to recent history), as interest rates are expected to continue to rise moderately. Moreover, a 5% real return looks very attractive compared to the 1.2% real return TIPS investors are currently willing to receive over the next five years.

Given our above outlined assumptions about the apartment sector, this implies a risk premium of approximately 275 basis points. If you believe that 350 basis points is a reasonable risk premium for the NPI, it is hard to argue that the apartment sector risk premium should be any higher. Over the last two decades, the apartment sector was clearly mispriced as it was able to produce substantial excess risk-adjusted returns (about 7% real) with lower risk than other property types. In theory, the lower-risk sectors should have lower required returns, but this has not been the case ex-post for the real estate asset class over the last 25 years. NCREIF historical risk and returns by property type, displayed in

Exhibit 8, indicate that the apartment sector's historical performance dominated all other sectors, offering higher returns and lower risk. On average, apartment investments produced substantial excess risk-adjusted returns or alpha over 1982–2004.

Exhibit 8: NCREIF Risk and Return by Property Type (1982 – 2004)



Source: NCREIF

Evident from the above exhibit is that the observed historical relationship between risk and return is actually negative—contrary to financial theory. Even when excluding the outlier sectors—apartments and office—the risk/return relationship is flat rather than positive. As such, the office sector has produced very low risk-adjusted returns, and the apartment sector has generated very strong risk-adjusted returns historically.

As real estate has grown more integrated with capital markets over the last decade or so, investors have seemingly started to increasingly recognize that property sectors should be priced differentially based in part on risk. This has certainly been the case in the apartment sector, which has benefited tremendously from this structural change in pricing.

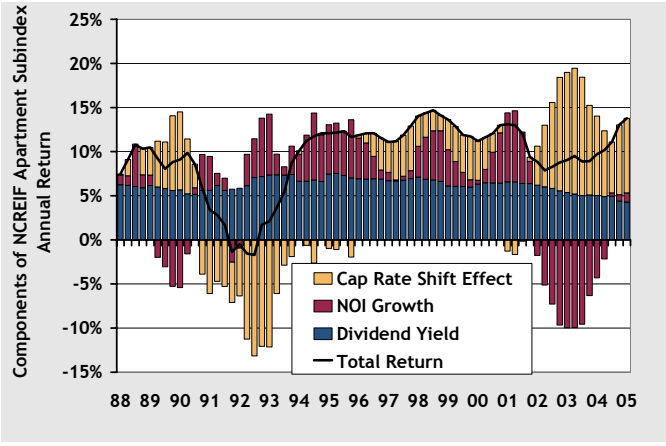
The apartment sector's exemplary performance and low risk over the past 20 years or so has also seemingly prompted investors to steadily increase their allocations to the sector. The apartment allocation in the NCREIF Property Index has expanded almost 10-fold over the past two decades to approximately 20%. Where it stands, a 20% allocation to the apartment sector is much closer to its true share in the overall commercial real estate universe (in the U.S.). The BlackRock Passive Index[5], which estimates the aggregate market value of the institutional real estate investment universe, places the apartment sector's share at 37%, indicating that there is still room for the sector's allocation in institutional portfolios to rise.

Given all of the arguments above, we view a risk premium of 275 basis points for the apartment sector as more than fair in the current environment of lower expected returns across asset classes. As pointed out, given rising interest rates and given thinner than usual apartment cap rate spreads over the risk-free rates, there is some risk of a cap rate shift, but we believe that the risk premium outlined above compensates investors for this risk and that the risk of a sharp rise in cap rates is fairly low.

Cap Rate Shifts

The decline in apartment cap rates over the past several years has had a pronounced positive effect on total returns (Exhibit 9). Going forward, these positive effects from falling cap rates are expected to abate and then disappear, as cap rates stabilize and then finally reverse modestly. Apartment returns are expected to increasingly be driven by earnings growth as the space market recovers.

Exhibit9: Total Return Components for the NCREIF Apartment Subindex (1988 – 2005Q1)



Source: NCREIF

While we expect that apartment cap rates will stop falling and potentially rise modestly over the next several years, we do not expect this to be a mean-reverting event. Given the apartment sector's exemplary historical performance and its relatively low risk, we believe that there has been a structural re-pricing of the sector, which accounts for a portion of the decline in cap rates. We view this re-pricing as rational in an overall environment of moderating return expectations. Investors are now pricing the sector more appropriately after mispricing it for a long time, which resulted in substantial excess risk-adjusted returns.

That said, any rise in cap rates due to a pricing shift will take away from returns. As suggested above, this is one reason we used a higher forward risk premium for the apartment sector in the fair pricing model, as there is a risk of an upward cap rate shift at some point over the next five years, particularly given the expected increase in interest rates.

Given that buying apartments today can result in returns that are higher than required returns under reasonable assumptions outlined earlier, this may imply that the market is already pricing in a moderate rise in the risk-free rate. Indeed, current consensus expectations have the yield on long-term bonds climbing by 50-80 basis points over the next 18 months.

As outlined earlier beneath Equation 1, rising interest rates tend to have a positive effect on cap rates. However, it is important to note the composition of rising interest rates (real rates or inflation expectations) and what is driving those factors as there are important implications for other variables

[5] *See: "BlackRock Passive Index," BlackRock Realty, available at* http://www.ssrrealty.com/research.htm

that influence the level of cap rates such as the real estate risk premium and earnings growth.

The first question to ask is whether interest rates are rising because of rising inflation/inflation expectations or because of rising real interest rates/return requirements. If the answer to this is that it is primarily inflation, then the second key question is whether this inflation that is driving interest rates higher is due to a strengthening economy or external factors such as oil price spikes.

Rising interest rates due to inflation

If inflation is rising due to an improving economy, then:

- Real estate space markets are likely to enjoy similar improvement.
- Earnings growth is likely to be stronger as a result.
- This tends to counter the effect of rising interest rates and potentially result in minimal cap rate effects.

If inflation is driven by external shocks such as supply-side oil shocks that are not accompanied by stronger economic growth, then:

- It is unlikely that real estate will be able to capture all of the increased inflation through earnings growth.
- Cap rates might climb modestly all-else-equal.

Rising interest rates due to rising real return requirements

If interest rates are rising primarily due to rising real return requirements, then:

- Cap rates will likely climb modestly, all-else-equal.
- But, rising real return requirements impair all asset classes.
- Therefore, real estate's prospects would have to be evaluated relative to these other asset classes' prospects.

The current environment is most like the first scenario—long-term interest rates are flat to edging up primarily due to rising inflation expectations. Real returns, as proxied by the yield on TIPS, have actually declined fairly steadily over the last year. While some of the rise in inflation is due to external factors such as oil, this is accompanied by strengthening demand and a stronger labor market, which is also putting upward pressure on inflation expectations and supporting improving space-market fundamentals. Incidentally, cap rates remain flat to down, which is consistent with this scenario.

Historically, apartments have actually faired well in periods of rising interest rates,[6] because these periods are typically driven by demand-side inflation, which has in turn supported apartment demand and afforded the sector to achieve solid inflation pass-through rates. We are also seeing that this is occurring now in the apartment space market, with strengthening absorption and earnings growth.

Alternatively, interest rates may not rise, perhaps due to a stagnating economy. In this case:

Flat Interest Rate Environment

- Low interest rates tend to keep cap rates low.
- Earnings growth will be modest in a stagnating economy, which puts upward pressure on cap rates.
- The net effect is likely a modest increase in cap rates.
- Investment returns from other asset classes are likely to remain modest.

The net effect in most plausible scenarios seems to be that cap rate increases are not going to be substantial for the next five years unless something precipitates a large capital outflow from the real estate sector. This would in effect be equivalent to a rise in the real estate risk premium, which is unlikely, as there is a lack of compelling investments available in the current environment and in light of steady improvement in space-market fundamentals.

We do believe that the apartment sector is in store for a modest rise in cap rates over the next several years. The apartment sector's dividend yield spread over the benchmark 10-year Treasury has fairly consistently hovered between -100 and +200 basis points since the early 1990s, averaging 80 basis points (refer back to Exhibit 2). The current spread is slightly below the long-term average and will likely fall in the near term, as implied yields/cap rates edge down or stabilize (spot cap rates appear to be stabilizing as per recent data from Real Capital Analytics) and interest rates rise. Historically, when this spread has fallen below its long-term average, it reverts within a couple of years and generally moves above its long-term average when it does.

Even if interest rates rise only modestly going forward as expected, should the yield-spread revert to its long-term average, cap rates could potentially shift up by 50 basis points or more. If this were to happen in a short time period, it could potentially result in a significant negative hit to short-term total returns unless a correspondingly large increase (high-single digits) in earnings growth were to occur.

While an eventual cap rate reversion of this magnitude is likely, we believe this process will be gradual and not huge in magnitude and that the cap rate spread over Treasuries will not rise over its long-term average (reflecting the structural nature of the re-pricing of the sector). This view is consistent with independent market researchers such as Torto Wheaton Research. A gradual rise in cap rates would be offset by earnings growth, and will not greatly impair returns. Exhibit 10 demonstrates the effects of a 50 basis-point rise in cap rates given the same assumptions about earnings growth as outlined earlier.

A 50 basis-point rise in cap rates, all-else-equal, does indeed result in lower returns, but the expected return is still above the required return. Clearly, much higher cap rates would further impact returns, but there are several mitigating factors to keep in mind. First, to mitigate the risks of a higher-than-expected cap rate rise, a disciplined market/asset selection strategy is imperative. Targeting markets that offer higher-than-expected earnings growth or that are likely to continue to experience strong capital flows that will minimize the potential for upward cap rate shifts would insulate against potential risks. Exhibit 11 demonstrates the rather wide distribution of earnings growth

[6] *See: "Real Estate Performance In A Rising Interest Rate Environment: An Empirical Analysis," BlackRock Realty, Winter 2005 available at* http://www.ssrrealty.com/research.htm

Exhibit 10: Expected v. Required Returns—Implied Fair Pricing Model With Cap Rate Shift

5-Year Nominal Risk-Free Rate	3.9%	Dividend Payout Ratio	*83.0%*
5-Year TIPS Implied Expd. Inflation	*2.7%*	Current Cap Rate	*5.6%*
5-year TIPS Risk-free Real Return	*1.2%*	Cap Rate Shift	*0.5%*

	Real Estate Risk Premium (bps) and Required Return (%)												
	200	*225*	*250*	*275*	*300*	*325*	*350*	*375*	*400*	*425*	*450*	*475*	*500*
	5.9%	6.1%	6.4%	6.6%	6.9%	7.1%	7.4%	7.6%	7.9%	8.1%	8.4%	8.6%	8.9%

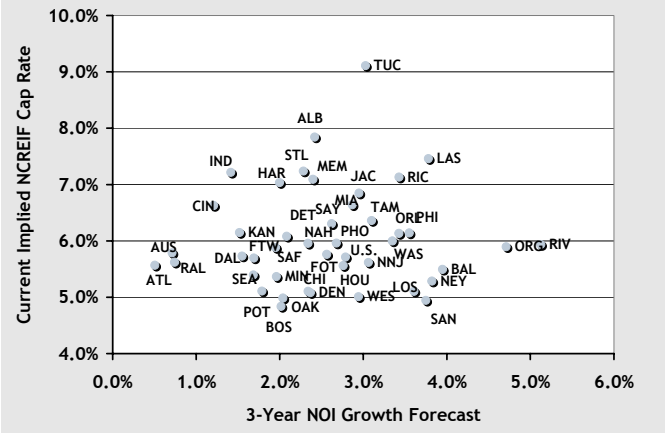
Earnings Growth	Nominal	Real	Five-Year Total Returns Based on Risk-Free Rate, Risk Premium and Earnings Growth and Cap Rate Shift												
	1.0%	-1.7%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
	1.5%	-1.2%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
	2.0%	-0.7%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
	2.5%	-0.2%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%
	3.0%	0.3%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%
	3.5%	0.8%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%
	4.0%	1.3%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%	7.2%
	4.5%	1.8%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%
	5.0%	2.3%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%
	5.5%	2.8%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%	8.7%
	6.0%	3.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%	9.3%

Scenarios in which expected return is greater or equal to required return.

Sources: NCREIF; Economy.com

forecasts and current implied cap rates. Strategically exploiting these differences, after taking into account varying degrees of market risk, will lead to superior risk-adjusted returns.

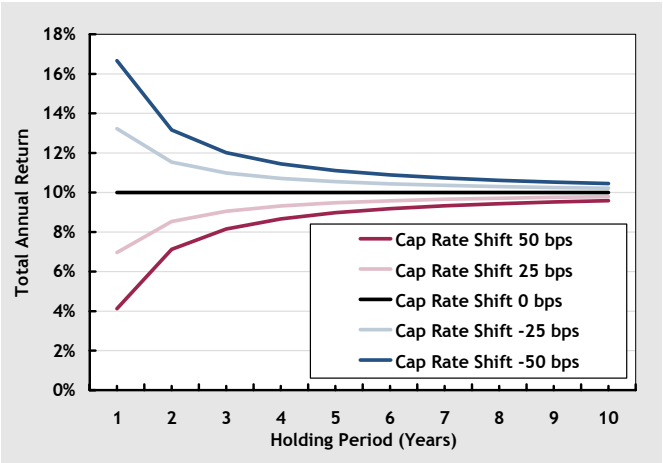
Exhibit 11: Current Cap Rates vs. 3-Year Forecasted NOI Growth by MSA



Source: REIS

Second, a further potential risk-mitigating factor is that the negative effects of rising cap rates are reduced over longer-term holds (Exhibit 12). For example, a 50 basis point rise in cap rates over a one-year period, all else equal, would subtract about 600 basis points from a baseline 10% return. On the other hand, a 50 basis-point rise in cap rates over a ten-year period has a negligible effect on total returns, all else being equal.

Exhibit 12: The Effects of Cap Rate Shifts on Total Return



Source: BlackRock Realty

Finally, rising cap rates will likely impact all property sectors and real estate investors must assess the impact on relative basis between property types. As pointed out earlier, dividend yields are roughly equivalent across property types. The property sector(s) that is able to achieve stronger earnings growth is in a better position to withstand rising cap rates and generate higher returns. We believe the apartment sector is well positioned to do just that. This also applied to markets and assets. Anecdotal evidence suggests that pricing spreads have narrowed considerably between riskier and less risky markets and assets. Again, if cap rates head up more than expected, those property types/markets/assets that can grow earnings will be the least impacted.

Earnings Growth: A Function of Space Market Fundamentals

The final and particularly important component needed to examine current apartment pricing is the expectation of earnings growth. Earnings growth is driven directly by apartment space-market fundamentals. In order to assess space-market fundamentals, it is necessary to examine both the demand and supply side of the market. Overall, the national apartment market remains out of equilibrium, but fundamentals are on the mend and are expected to continue to improve going forward. The apartment sector stands to benefit from several cyclical and structural factors that will work to support demand for rental units and bolster earnings over the next several years. BlackRock Realty expects that apartment earnings growth will significantly outpace overall inflation over the next five years.

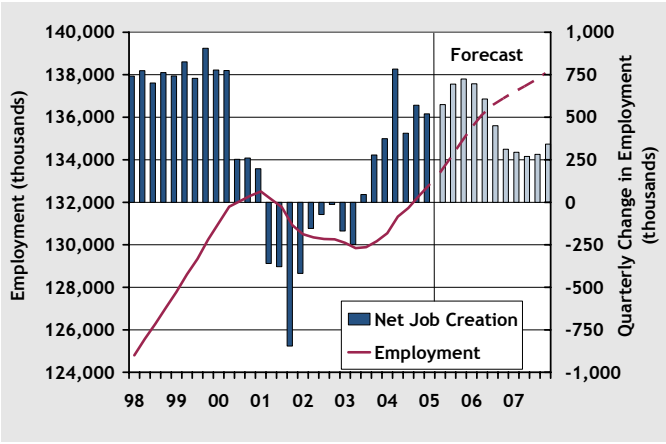
Demand-Side Factors

Apartment demand has been plagued over the last several years by the confluence of a slowdown in household formation during and following the recession and an unprecedented rise in the homeownership rate. During the recession and ensuing extended period of weak labor-market conditions, many would-be renters moved in with a roommate or even back into their parents' homes[7], which weighed on household formation and demand for apartments. The economy is now comfortably expanding and is finally generating new jobs at a decent pace.

The Economy

On a positive note, the cyclical factors that mired the apartment sector have turned and are now working to support rental demand. Last year marked the strongest economic growth since 1999 and, even more importantly, the long-awaited recovery in the labor market. Over the course of 2004, employment climbed by approximately 2.2 million. Through March of this year, the labor market has recovered all of the roughly 2.7 million jobs lost during the downturn and employment is now 380,000 above its previous peak (Exhibit 13). Going forward, the labor market is expected to continue to create jobs at a moderate pace, equating to approximately 150,000 to 200,000 jobs per month over the next year, or annual growth of about 1.5%-2.0%. Businesses are expected to continue to hire as demand continues to grow and labor productivity growth decelerates.

Exhibit 13: Employment and Job Creation (1999 – 2007)



Source: Economy.com

Given that we have recovered all of the jobs lost during the recession and job growth is expected to remain moderate, household growth is expected to experience a cyclical bounce. Indeed, indications are that this is already occurring, which will support apartment absorption. As job growth picks up, more people move to new jobs and move out on their own, particularly those that "doubled-up" during the tougher economic times. Stronger household formation ultimately drives demand for apartments.

Homeownership

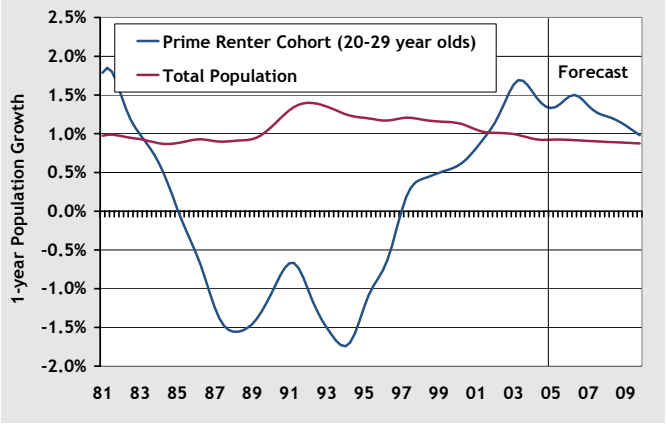
The other key factor that led to unprecedented weakness in the apartment space market in recent years was the steady rise in the homeownership rate. Over the last decade, the national homeownership rate climbed from about 64% to a record 69% last year. Several factors accounted for this unprecedented change.

First and most importantly, during this period, the share of the population of prime home-buying age was expanding, driven primarily by the aging of the "baby-boom" cohort. Second, rising home affordability driven by record-low interest rates and new financing techniques kept mortgage-service costs affordable despite the steady climb in home prices. Third, rising wealth through the 1990s prompted more households to own rather than rent. Finally, government programs that promoted rising homeownership through subsidized lending programs also contributed to rising homeownership over this period.

We believe that this trend of rising homeownership has run its course. Demographic effects working against demand for rentals are moderating, as the "echo boom" enters its mid-20s (into the peak renting years). This cohort, which is the largest since the "baby boom", is expected to drive above-average population growth in the prime-renter cohort over the next several years. Indeed, the population of those aged 20-29 years is expected to grow at a rate 40% faster than the overall population over the next five years, according to Economy.com (Exhibit 14).

[7] *See: "Doubling-up and Apartment Demand", NMHC Research Notes Dec. 10, 2004*

Exhibit 14: Population Growth: Prime Renter Cohort vs. Total Population



Source: Economy.com

Another trend that appears to be shifting the pendulum back in favor of renting is the fact that single-family housing affordability is on the decline. Home prices have continued to rise unabated, and mortgage rates have recently started to rise, which is putting downward pressure on affordability, particularly for first-time/younger buyers that typically finance a larger portion of their home purchase and have lower than average incomes. While homeownership rates have yet to fall nationally, some coastal markets that have experienced a dramatic run-up in home prices and where affordability is very low are starting to experience falling homeownership rates.

As affordability declines going forward, renting will be an increasingly attractive option. Indeed, the relationship between home prices and rents is well out of equilibrium. The nationwide median house price, adjusted for inflation, has climbed by more than 30% from 1997 through the end of last year. For the 12 years prior to this, real house prices were virtually flat. This appreciation is even more dramatic when contrasted to real rent growth over the same period. Much like median home prices, average real apartment rents were roughly flat for the 12-year period ending in 1997. Since then, because of the weakness in apartment space-market fundamentals, real apartment rents have dropped by about 10%. Thus, the ratio of real home prices to real rents is well out of sync with historical norms.

As interest rates rise further, this will continue to put downward pressure on affordability and lock many new buyers out of the market. This will make the disconnect between rents and home prices even more apparent and keep more would-be first-time buyers in the renter market. There is an increasing share of buyers using aggressive no-money-down or interest-only variable-rate mortgages to squeeze into homes in higher-priced areas. Rising rates will circumvent these strategies and ultimately weigh on demand for single-family homes.

Finally, government programs that promote homeownership are starting to run into opposition due to credit quality concerns. Overall, we expect that the homeownership rate will flatten out and even trend down slightly going forward, which is consistent with what economic forecasting firms such as Economy.com are forecasting.

Renter Household Growth

Combining these trends, we expect an imminent turnaround in renter household growth that will be sustained over the next decade, resulting in average annual growth of approximately 1.5% in renter households. This is consistent with Economy.com's baseline forecast of household growth and the homeownership rate. Nascent signs of this turnaround are already materializing. According to REIS, the national apartment market posted positive absorption in the first quarter of this year, ending a three-year period of negative first-quarter absorption. The national apartment vacancy rate also edged down again in the first quarter of 2005 to 6.6%, down 50 basis points over the last year.

Supply-Side Factors

Given that vacancy rates remain elevated, any improvement in apartment demand will result in stronger rent growth only if it is able to outpace growth in new supply. During the downturn in demand, supply growth moderated, but did not shut down—leading to rising vacancy. That being said, new apartment supply has grown at a fairly modest rate of about 1%-1.5% over the last several years. This is much lower than the growth that prevailed during the mid-1980s before the Tax Reform Act of 1986. Market forecasts (REIS, PPR) call for continued modest growth in new apartment supply that will be outpaced by absorption growth, resulting in falling vacancy rates.

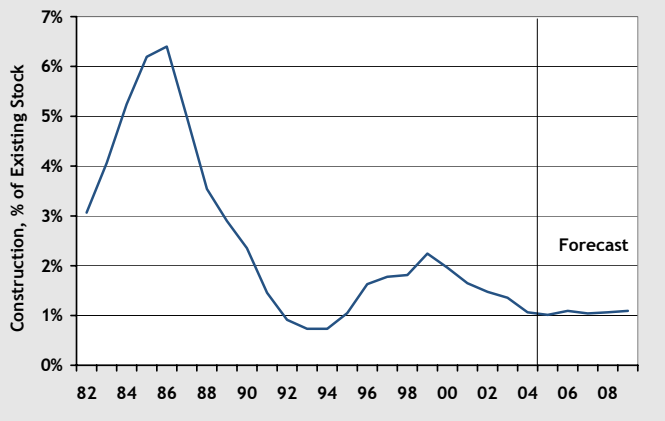
Furthermore, an increasing share of new multifamily construction is in the form of for-own units (condos and townhomes). For-rent units accounted for 68% of the new construction in 2000, and are expected to only account for 48% this year, according to PPR. Another trend that is working to mute new supply of apartments in certain markets is the condo conversion phenomenon, where existing for-rent apartments are converted to condominiums. According to RCA, condo converters converted 69,000 units in 2004.

While condo conversion and construction have actually helped alleviate excess rental supply in some markets and presented a particularly lucrative exit strategy for some apartment investors, it does present some risk going forward. Specifically, if developers/converters overestimate demand for such units and a flood of condo units re-enter the market as rental units, this would have a negative effect on the apartment market. This risk is a local market risk and is likely only a potentially significant problem for a handful of markets that have seen a torrent of condo development such as some markets in South Florida. Going forward, rising interest rates will likely make the conversion strategy a less profitable endeavor. As rents rise and house price growth slows or even stops (in some markets), the spread between asset pricing for rent and conversion will narrow, making these deals less profitable to converters.

Several other issues that tend to keep apartment supply from ramping up substantially. Many established municipalities, particularly suburban ones, discourage apartment development. This contributes to apartments having supply constraints not found with most other property types. In addition to municipal reluctance (or the not-in-my-backyard syndrome), several other factors also contribute to this condition of supply restraint. Short-term (one-year) leases lead to greater transparency in market supply/demand

characteristics. Furthermore, tenants are less dependent upon narrow economic sectors—the tenants for office, retail and warehouse each come from fairly thin slices of the economic pie. Finally, with other property types, the tenants themselves (e.g., Home Depot, Wal-Mart, etc.) often drive development. Their strategic views may involve non-real estate considerations. Overall, new apartment supply growth is expected to average about 1% nationally over the next five years according to REIS (Exhibit 15).

Exhibit 15: New Apartment Construction (1982 – 2009)



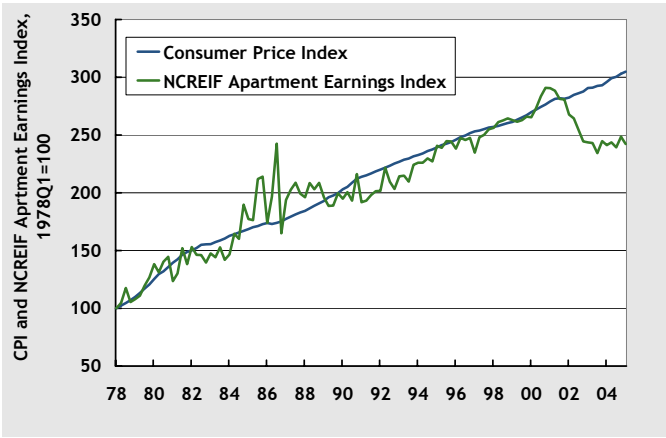
Source: REIS

Rent and Earnings Growth

Given the current and expected apartment space-market supply and demand trends outlined above, the unprecedented decline in apartment rents and earnings experienced over the last few years is expected to soon reverse. In fact, vacancy rates are already falling and effective rents are on the rise. These positive trends are expected to accelerate in the near term as apartment absorption outpaces new construction, resulting in strengthening rent and earnings growth going forward.

Historically, the apartment sector has produced the strongest earnings growth of all property types. Until this recent downturn, apartment earnings closely tracked overall consumer prices (Exhibit 16). Going forward, we expect that apartment earnings growth will experience a strong cyclical upswing, with growth outpacing overall inflation over the next several years. The national apartment market is expected to reach equilibrium within the next several years, given stronger expected steady improvements in demand. Historically, during periods when the apartment sector's vacancy rate has been below its estimated natural rate (about 5.5%), earnings growth has outpaced inflation by a factor of 1.75. While the space market remains out of equilibrium now, once it recovers further, the sector could experience robust earnings growth as high as 5%.

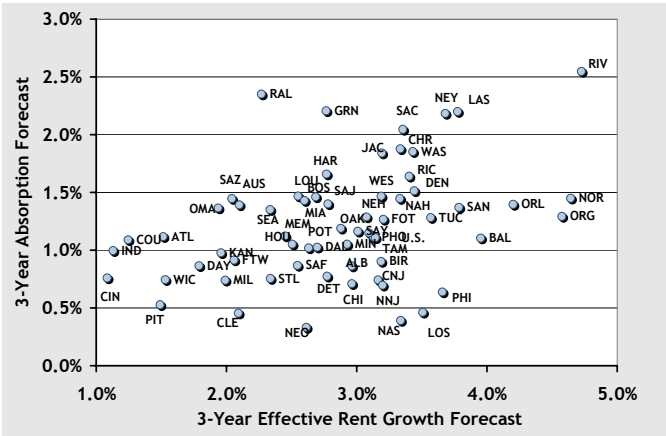
Exhibit 16: NCREIF Apartment Earnings vs. Inflation (1978 – 2005Q1)



Sources: NCREIF; Economy.com

At the market level, we believe that certain markets are already in equilibrium and are expected to substantially outperform, generating earnings growth well above the national average and offering upside returns. Exhibit 17 provides three-year rent and absorption forecasts by MSA based on REIS data. Clearly there are opportunities to invest in markets with higher expected rent and earnings growth. The key is also to be able to assess pricing and risk in those markets in order to generate superior risk-adjusted returns.

Exhibit 17: Apartment Absorption and Rent Growth by MSA (2005 – 2007)



Source: REIS

BLACKROCK

Conclusion

This paper set up a fair pricing model in order to assess current apartment pricing based on observed or assumed risk-free rates, risk premiums, and earnings growth. Using a theoretically sound fair pricing model with fairly conservative assumptions about earnings growth and the apartment sector's risk premium, the conclusion is that current apartment pricing is fair. In fact, earnings growth could very well be much stronger, as has been the case in previous cyclical upswings, resulting in significantly higher return performance for the sector. Current pricing is also fair given the expectation of moderately higher interest rates and the possibility of a modest cap rate reversion in the medium term.

Going forward, it is unlikely that the apartment sector will deliver the huge alpha that it has over the last two decades. Investors have wised up and are now seemingly pricing the apartment sector to reflect its low relative risk compared to other property types. Although the sector is now priced more appropriately, it remains fairly valued to deliver moderating, but attractive, risk-adjusted returns. The apartment space market is poised to benefit from several structural and cyclical trends that will support stronger-than-average earnings growth.

As interest rates climb going forward with the expanding economy, apartment cap rates are expected to stop falling and eventually turn up modestly. We do not expect this event to be a mean-reverting process, and the net effect on total returns is expected to be minimal. As the effects from falling cap rates fade, returns will be increasingly driven by accelerating earnings growth. BlackRock Realty continues to expect the sector to outperform on a risk-adjusted basis and thus continues to advocate an overweighting to the sector relative to the NPI for the average moderate-risk investor.

Apartment sector returns can be enhanced by targeting key markets that are expected to outperform on a risk-adjusted basis. Returns can also be potentially enhanced by pursuing higher-risk strategies such as value-added or opportunistic plays or by using leverage.

Appendix A

The implied fair cap rate model used in this paper is derived from the following derivation of the dividend discount model or discounted cash flow model.

A property's value (V) is based on its forward cash flow (C_1) discounted by a discount rate (k) net of expected earnings growth (g):

$$1)\ V = \frac{C_1}{k - E[g]}$$

A property's cap rate CAP(C_1) is in turn represented by its forward cash flow (C_1) over its current value (V):

$$2)\ CAP(C_1) = \frac{C_1}{V} = k - E[g]$$

Forward cash flow (C_1) is a function of current cash flow (C_0) and earnings growth (g):

$$3)\ C_1 = C_0(1 + E[g])$$

Current cash flow (C_0) is a function of current earnings (NOI_0) and the dividend payout ratio (DPR):

$$4)\ C_0 = NOI_0(DPR)$$

The required return (k) is a function of the risk-free rate (k_{rf}) and a risk premium (δ):

$$5)\ k = (k_{rf} + \delta)$$

The risk-free rate is a function of the real risk-free rate (r) and expected inflation (E[P]):

$$6)\quad k_{rf} = (r + E[\rho])$$

Putting all of these equations together and solving for the fair cap rate based on current earnings CAP_e yields:

$$6)\ CAP_e = \frac{NOI_0}{V} = \frac{((r + E[\rho]) + \delta) - E[g]}{(DPR)(1 + E[g])}$$

This equation can then be manipulated to produce the following relationship, which states that in equilibrium, the expected return from above plus any expected change in cap rate E(Δ) should equal the required return:

$$7)$$

$$\frac{NOI_0}{V}(1 + E[g])(DPR) + E[g] + E[\Delta] = ((r + E[\rho]) + \delta)$$

Disclaimer

 This report is not to be construed as an offer to buy or sell securities. This is a general analysis of the real estate market prepared by BlackRock Realty Advisors, Inc. ("BlackRock") and is not related to any specific products or services of BlackRock or any affiliate. Sources for statistics and other factual data included herein are maintained by the Research Department of BlackRock. Such data has not been verified by BlackRock and we can give no assurance that it is accurate or complete. Statements contained herein that are nonfactual constitute opinions of BlackRock, which are subject to change. Financial projections contained herein are estimates only and are based on assumptions. No assurance can be given that either the projections or the assumptions will prove to be accurate. BlackRock is not responsible for typographical or clerical errors in this Report or in the dissemination of its contents. Reliance upon information in the Report is at the sole discretion of the reader.