

What Should Stabilized Multifamily Cap Rates Be?

*An examination of theoretical
cap rates suggests that apartment
pricing already reflects a
substantial increase in long-term
interest rates.*

IF A MULTIFAMILY property has achieved stabilized cash flow growth, intelligent application of the cap rate methodology will generate a valuation that is consistent with a detailed discounted cash flow (DCF) analysis. Absent long leases, and abnormal revenue or cost increases, the income stream from a stabilized property will grow at a roughly constant rate. Rather than conducting a DCF analysis that is largely an arithmetic exercise of growing current income at a constant growth rate, cap rate analysis greatly simplifies the valuation exercise without sacrificing accuracy. Apartments generally do not have long leases, nor do they have abnormal outlays associated with either tenant improve-

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ments or leasing commissions. As a result, in normal markets, multifamily properties are ideal candidates for cap rate analysis.

A property's cap rate is defined as its stabilized income, divided by its value. This immediately raises the question, "What measure of income?"—net operating income (NOI) or cash flow? The main difference between these alternative income metrics for apartment properties is recurring Cap Ex, while for other property types differences also arise due to tenant improvements and leasing commissions. Also, is it this year's or next year's income? To answer these questions, we visit the theoretical underpinnings of cap rate analysis.

THE GORDON MODEL

The Gordon Model states that the sum of discounted cash flows into perpetuity for a stabilized cash stream is represented by

$$V = \frac{C_1}{r - g},$$

where V is the property's value, C₁ is the cash flow derived from the property next year, r is the discount rate associated with the risk of the property's cash flows, and g is the annualized growth rate of the property's cash flow. From this it is obvious that the forward cash flow cap rate, CAP (C₁), is equal to

$$CAP(C_1) \equiv \frac{C_1}{V} = r - g.$$

That is, the forward cash flow cap rate equals the discount rate minus the annual cash flow growth rate.

The forward cash flow cap rate equation vividly demonstrates that a property's cap rate is a trade-off between its risk (r), and its cash flow growth potential (g). The higher a property's risk, the higher its cap rate is, while the greater the property's cash flow growth potential, the lower its cap rate. The Gordon Model of valuation applies only if the discount rate (r) is relatively large compared to the income growth rate. In fact, if the discount rate equals the growth rate, the valuation equation implies that the property's value is infinite. That is, the model explodes, because the discounted cash flow (DCF) model fails to yield a converging value. Intuitively, if the growth rate is higher than risk, eventually the property's cash flow becomes more than 100 percent of the economy. Clearly that is impossible.

The valuation equation demonstrates that the appropriate measure of income for cap rate analysis is next year's cash flow (C₁). If, instead, the property's current cash flow is used, an adjustment is required to reflect the cash flow growth that occurs between the current year and next year. For a stabilized property, next year's cash flow equals this year's cash flow (C₀) plus the growth associated

with the stabilized growth rate (g),

$$C_1 = C_0(1 + g).$$

Substitution of this formula into the valuation equation allows us to solve for the cap rate associated with current cash flow, CAP(C₀):

$$CAP(C_0) \equiv \frac{C_0}{V} = \frac{r - g}{1 + g}.$$

That is, the cap rate based on current cash flow equals the forward cash flow cap rate divided by one plus the cash flow growth rate. Thus, if cash flow grows over time, the cash flow cap rate based on current cash streams is lower than that associated with future cash streams, by an amount reflective of the growth that occurs between today and tomorrow.

The Gordon Model can also be used to derive the appropriate NOI cap rate. If recurring Cap Ex requirements are stated as a percentage of NOI, then cash flow next period is expressed as

$$C_1 = N_1(1 - d),$$

where N₁ is next year's NOI, and d is the ratio of recurring Cap Ex to NOI. This ratio will generally be 16 percent to 18 percent for institutional quality apartments, and higher for most other property types. For example, if next year's NOI is projected to be \$10 million, and recurring Cap Ex is \$1.7 million, then d equals 0.17. Manipulating the relationship

between cash flow and NOI yields the forward NOI cap rate, CAP(N₁), as

$$CAP(N_1) = \frac{r - g}{1 - d}.$$

Thus, if the forward cash flow cap rate is 7 percent, and recurring Cap Ex equals 17 percent of NOI (d=0.17), then the forward NOI cap rate equals 8.4 percent. We can also solve for the cap rate associated current NOI, CAP(N₀),

$$CAP(N_0) = \frac{r - g}{(1 - d)(1 + g)},$$

where N₀ is current year NOI.

Table I displays the NOI and cash flow cap rates for both this and next year income, when it is assumed that the discount rate is 8 percent, the annual cash flow growth rate is 2 percent, and the ratio of recurring Cap Ex to NOI equals 0.17. Note that the cap rate differences associated with using current-year income versus next-year income are relatively small, as long as the growth rate is small. However, the difference between cash flow cap rates and NOI cap rates is substantial, reflective of the fact that recurring Cap Ex drains significant cash.

Table I: Cap rates example*

| | |
|------------------------|-------|
| On next year cash flow | 6.00% |
| On this year cash flow | 5.88% |
| On next year NOI | 7.23% |
| On this year NOI | 7.09% |

* For r=0.08, g=0.02, and d=0.17.

FORWARD CASH FLOW CAP
RATE SPREADS

The spread between forward cash flow cap rates and the risk-free rate is a common way to describe cap rates. If we proxy the risk-free rate by the ten-year U.S. Treasury bond yield, this spread reflects the additional risk associated with the property relative to Treasuries, net of the perceived property income growth opportunity. We employ NCREIF's current year NOI cap rate data to obtain the "big picture" on how forward cash flow cap rate spreads have moved the last 25 years. Current year NOI cap rates are converted to next year cash flow (after recurring Cap Ex) by assuming that recurring Cap Ex as a percent of NOI is 17 percent for multifamily; 36 percent for retail; 31 percent for indus-

trial; and 33 percent for office. These ratios are consistent with historical Cap Ex expenditures on NCREIF properties.

Figure 1 displays the history of forward cash flow cap rate spreads. In the early 1980s, when you bought real estate, you not only acquired its income growth potential and risk, but also accessed enormous tax benefits, as well as the option to massively leverage the property. As a result, the value of a property reflected the value of future operating income, plus the value of the tax benefits, plus the value of the option to leverage the property. During this period, forward cash flow cap rate spreads for all property types were negative, as their cash flow risk and potential were swamped by the value of the leveraging option and tax benefits. Forward cash flow cap rate spreads in the

early 1980s were consistently 400 to 800 basis points lower than ten-year Treasuries, in spite of the fact that high (and rising) vacancy meant there was little hope for near-term cash flow growth. In this era, forward cash flow cap rate spreads were not about real estate, but rather about purchasing the option to overleverage and to access tax benefits.

When real estate's tax benefits were eliminated in 1986, forward cash flow cap rate spreads rose almost overnight by roughly 400 basis points for all property types. Nonetheless, forward cash flow cap rate spreads remained 200 to 400 basis points below Treasury yields, in spite of weak property fundamentals, due to the continued presence of the option to overleverage. That is, purchasing a property provided operating income risk and opportunity, as well as the option to receive grossly mispriced non-recourse debt. During this period, variations in spreads across product types grew, with retail and office cap rate spreads being roughly 200 basis points lower than for apartments. This gap reflected the greater perceived credit quality of retail and office tenants.

In the early 1990s, real estate debt evaporated, and real estate no longer included an option to overleverage. Instead, purchasing real estate included the requirement to underleverage. Thus, even as construction ceased and property fundamentals began modestly improving,

forward cash flow cap rate spreads exploded, rising by nearly 400 basis points. Retail and office forward cash flow spreads remained the lowest, while spreads for apartments remained the largest, at nearly a 200 basis point spread over Treasury bonds.

By the mid-1990s, not only were real estate fundamentals improving, but real estate capital markets were returning to equilibrium due to capital flows to CMBS, REITs, and opportunity funds. As a result, the period from late 1994 through the August 1998 Russian ruble crisis saw forward cash flow cap rate spreads for apartments moderate to 50 to 100 basis points. Retail spreads remained the narrowest, at -100 basis points, while office and industrial spreads were roughly zero.

The late-1998 Russian ruble crisis, which had nothing to do with real estate, caused forward cash flow cap rate spreads to rise by 100 to 200 basis points, as real estate capital markets were now connected with broader global capital flows. Hence, as global capital fled to safety, it abandoned relatively risky assets, including real estate. This pattern continued even as global capital markets stabilized, as the tech bubble made cash flow seem passé.

When the tech bubble burst in 2001, forward cash flow cap rate spreads narrowed, falling by 50 to 75 basis points as cash flow became king. As property market fundamentals weak-

Figure 1: Forward Cash Flow Cap Rate Spreads

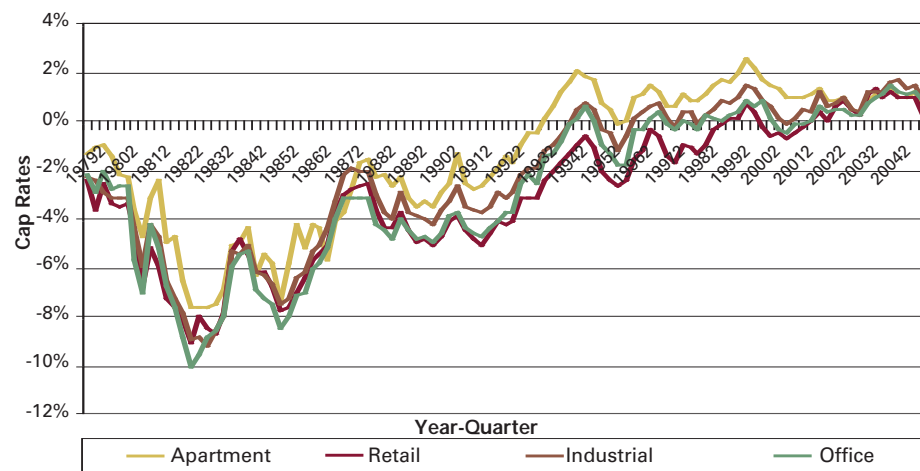
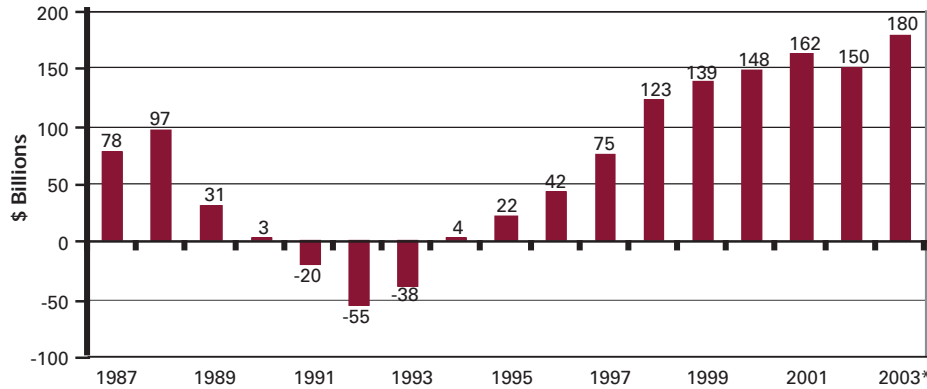


Figure 2: Commercial Mortgage Flows



Source: Federal Reserve Bank; *Mid-year seasonally adjusted annual rate.

ened following 9/11, forward cash flow cap rate spreads rose temporarily. Forward cash flow cap rate spreads have subsequently fallen by 100 to 150 basis points across the board since late 2002, in spite of weakening property fundamentals. This reflects the fact that although real estate fundamentals have eroded, they have eroded less than in other sectors. As a result, real estate has been a favored asset class. Narrowing spreads, combined with the roughly 100 basis-point decline in long-term Treasury rates, have caused nearly 300 basis point drops in forward cash flow cap rates.

SUSTAINABLE CAP RATES

So, what is the historic relationship between cap rates and long-term

Treasuries? If we focus on the “modern” real estate era, when real estate capital markets are connected to global capital markets, and ignore both the Russian ruble crisis and the tech bubble, the answer appears to be that forward cash flow cap rate spreads for institutional quality multifamily properties are 50 to 100 basis points. But it is only these brief periods of the past 25 years that are reflective of true real estate pricing, as opposed to an option to overleverage, access to tax benefits, and abnormal capital markets. Thus, we expect forward cash flow cap rate spreads of approximately 50 to 100 basis points for stabilized portfolio of institutional-quality multifamily properties, as the greater risk of these properties relative to long-term Treasury bonds is roughly offset by their cash flow growth potential.

Another way to evaluate the appropriate forward cash flow cap rate is to note that the discount rate can be defined as the sum of the risk-free rate (FREE), plus a liquidity premium associated with the property relative to the risk-free asset (LIQ), plus the additional return required due to the operating and market risks of the property relative to the risk-free rate (RISK):

$$r \equiv \text{FREE} + \text{LIQ} + \text{RISK}.$$

The liquidity and operating risk dimensions of an A-quality multifamily property are best proxied by the risks associated with BB bonds, which historically carry a roughly 210 basis point spread over ten-year Treasuries. This is the general risk for pass-through credit card receivables, which, like stabilized multifamily cash streams, reflect unsecured credit claims on a broad base of consumers. For B-quality properties, the cash stream and liquidity risks are more equivalent to modestly lower credit bonds, BB-, which typically yield about 260 basis points over the risk-

free rate. For C properties, with lower credit quality tenants and deteriorating competitive positions, the risks are roughly equivalent to B-rated bonds, which have spreads of roughly 350 basis points.

If the stabilized cash flow growth rate is approximately equal to inflation, or about 2 percent per annum, and recurring Cap Ex is approximately 17 percent of NOI, then the theoretically sustainable forward cap rates for A, B, and C-quality properties are displayed in Table II for two risk-free interest rate scenarios. Specifically, we analyze the environment where ten-year Treasuries remain at today’s rate of approximately 4.2 percent, as well as the scenario where the ten-year Treasury yield rises to a more sustainable 5 percent. Note that the sustainable forward cash flow cap rates associated with a 5 percent interest rate environment are not substantially different than those that prevail today. That is, markets are currently pricing multifamily properties as if they believe that long-term interest rates are closer to 5 percent rather

Table II: Cap rates example*

| | For A properties ² | | For B properties ³ | | For C properties ⁴ | |
|-----------------------------|-------------------------------|-------------|-------------------------------|-------------|-------------------------------|-------------|
| | 4.2% Treasury | 5% Treasury | 4.2% Treasury | 5% Treasury | 4.2% Treasury | 5% Treasury |
| On forward cash flow | 4.3% | 5.1% | 4.8% | 5.6% | 5.7% | 6.5% |
| On current NOI ⁵ | 5.1% | 6.0% | 5.7% | 6.6% | 6.7% | 7.7% |

1 All scenarios assume the stabilized cash flow growth (g) is 2% annually.
 2 The risk premium for A properties is 210 basis points.
 3 The risk premium for B properties is 260 basis points.
 4 The risk premium for C properties is 350 basis points.
 5 Recurring Cap Ex equals 17% of NOI.

than the current 4.2 percent. As a result, a 70 basis point increase in long rates should not appreciably change cap rates.

CONCLUSIONS

This analysis demonstrates that an internally consistent and disciplined approach exists for analyzing stabilized multifamily cap rates that focuses on the forward cash flow cap rate. While cash flow cap rates generally should rise with long-term interest rate rising, in view of current pricing they should remain in the range of 5 percent for A-quality properties, as the forward cash flow cap rate spread for A properties should be approximately 0. For B and C properties, the forward cash flow cap rate spreads should be approximately 60 and 150 basis points, respectively. These results are consistent with the forward cash flow cap rate spreads that have prevailed in normal markets for institutional quality multifamily properties.

Cash flow cap rates of roughly 5 percent to 5.5 percent are consistent with an unlevered total return expectation of roughly 7 percent to 7.5 percent for A-quality multifamily properties. Based on Jeremy Siegel's analysis of long-term stock returns, the anticipated return for the S&P 500 is approximately 7 percent plus inflation. Thus, the expected S&P 500 return is approximately 9 percent in a 5 percent

ten-year Treasury bond yield environment, the CAPM model implies the beta for an unlevered, high-quality apartment portfolio is approximately 0.5. This compares to 0.2 to 0.4 betas found for the major apartment REITs. Thus, if anything, REIT betas suggest that apartment forward cash flow cap rates should perhaps be modestly lower than those shown in Table II. These low return requirements for top-quality multifamily properties reflect the fact that their cash flows have relatively low correlations with the market, as well as the fact that total return volatility for apartments is approximately 25 percent less than is the case for S&P 500.

Of course, in the short run, markets can deviate substantially from theoretical expectations. One need only recall the giddy days of the dot.com era. However, over the long run, pricing patterns tend to revert to those justified by fundamental risks and returns. Thus, we expect forward cash flow cap rates for multifamily properties that are approximately equal to the ten-year Treasury yield for A-quality apartments, and approximately 60 to 150 basis points higher for B and C properties, respectively.

Although the bond market is currently pricing ten-year Treasury yields at 4.2 percent, we expect cap rate reversion over the coming year due to ten-year Treasury yields rising towards 5 percent. The multifamily asset market is pricing as if this 80

basis point increase, a roughly 18 percent value exposure, has already occurred. Further, as cash flows rise over the next year, values will be nudged upwards.

Finally, it is important that the industry becomes more precise about whether it is referring to cash flow, or NOI, cap rates. Unfortunately, all too often these concepts are used interchangeably. They are greatly different. Such carelessness creates needless confusion. We strongly encourage the industry to adopt the more theoretically correct concept of forward cash flow cap rates when discussing cap rates.

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