

Finding Cap Rates: A Property Level Analysis of Commercial Real Estate Pricing

Executive Summary

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Capitalization rate (cap rate), the ratio of income to property value, plays an important role in real estate investment decisions. For example, the going-out cap rate is a key input in the classic Net Present Value (NPV) analysis for investment. Modest changes in the cap rate may produce substantially different NPVs, and eventually lead to different investment decisions. Therefore, a good understanding of the determinants of cap rates, particularly at the property level, has direct implications for commercial real estate investments.

This paper empirically two fundamental questions regarding property level cap rates. First, how are cap rates of individual properties affected by three types of variables – macroeconomic conditions, local market conditions, and property attributes? Second, what drives the uncertainty in property cap rates?

Using about 10,000 transaction cap rates of institutional grade apartment, industrial, office, and retail properties from 1980s through 2012 in the National Council of Real Estate Investment Fiduciaries (NCREIF) database, we find that macroeconomic conditions and time-invariant of local market attributes, which are measured with fixed effects of Core Business Statistic Areas (CBSA) where properties are located, play a dominating role in explaining property level cap rates. The four most impactful macroeconomic variables are: (1) the credit availability, which is measured with the development of the CMBS market; (2) risk-adjusted investment performance of real estate in the past, which is measured with the ex post Jensen's Alpha estimated from past NCREIF Price Index (NPI) total returns; (3) the lagged house price index appreciation; and (4) nonresidential construction spending. Specifically, the more developed is the CMBS market and the higher is the ex post Jensen's Alpha, the lower is the cap rate. Further, higher lagged house price index appreciation and more nonresidential construction spending seem bad news for investors as they increase cap rates. We find very weak explanatory power of time varying local market conditions and property attributes. While having low incremental explanatory power, rent growth affects cap rates for apartment and industrial properties, but the direction of the impact differs and is related to occupancy. In terms of property attributes, older apartment and retail properties tend to have higher cap rates, and larger properties, except apartment, tend to have lower cap rates.

We also find original evidence regarding the uncertainty in property cap rates, which is measured with the squared value of the component of property cap rate that is not explained by CBSA fixed effects and macroeconomic conditions. Specifically, there is a statistically significant positive

relationship between property cap rates and uncertainty in cap rates for all property types. This seems to suggest that properties with lower pricing risk have higher values. We also find that property age and size have no impact on cap rates, except that larger office properties have lower cap rate risk.

This project not only contributes to the academic literature, but also has direct implications on the practice of commercial real estate investors. The empirical findings in this paper may help guide investors in estimating cap rates corresponding to different scenarios of future economic conditions at both the national and regional levels and for properties with specific sets of attributes.