Housing Prices and the Return to Housing: Rents and Interest Rates Still Matter*

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Abstract

The rent-to-price ratio of owner-occupied housing is at a 45 year low. This fact alone have led many commentators to infer that the recent run-up in housing prices implies unsustainable expectations over future house price increases. Using a new 45 year time series derived from several sources on the level of rents and prices for owner-occupied real estate, we show that the recent decline in the rent-to-price ratio is largely attributable to a change in borrowing conditions and that the recent decline is actually smaller in real terms than occurred in either 1979 or 1987 (the previous two real estate peaks). Further, using only information available in time \( t \) we infer time \( t + 1 \) expectations of real house price increases and show that not only have these expectations been relatively stable over time, but they have been almost constant since 1986.

Keywords: House Prices, Rents, Expectations, Expectation Formation

1 Introduction

The rent-to-price ratio has long been used as a measure of residential house price valuation; roughly speaking, this ratio is the equivalent to the earnings-price ratio for stocks and the capitalization rate for commercial properties. Therefore, large changes in the ratio have often led to concerns over the sustainability of house

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prices. In particular, the fact the rent-to-price ratio is currently at a 45 year low of 3.9 percent has led many researchers to infer that house prices must fall to bring this ratio back in line with its long-run average. This inference has been made in both error correction models (Gallin 2004) and in asset pricing approaches (Weeken 2004, Davis and Martin 2005). However, this view is too simplistic — the rent-to-price ratio may indeed be stationary but only because the underlying variables which determine the ratio are stationary and these (such as the real interest rate or expectations over future capital gains) may make long deviations from their average values.

Standard asset pricing models suggest that the rent-price ratio \( \left( \frac{d_t}{P_t} \right) \) should be equal to the following expression

\[
d_t/P_t = E_t \left[ m_{t+1} \left( R_{t+1} - \frac{P_{t+1}}{P_t} \right) \right]
\]

where \( d \) denotes rents, \( m_{t+1} \) is the stochastic discount factor by which an agent discounts future payoffs, \( P \) is the price of housing, and \( R \) denotes the return to some bond. The choice of \( R \) in the above equation is important. For the above equation to hold as an equality, the relevant bond must be held by the household and the holding choice must not be constrained. As the majority of households who participate in the housing market also hold mortgages, we take \( R \) as the mortgage interest rate. One can see immediately that a decline in the rent-to-price ratio can be attributable to a change in the distribution of future capital gains but changes in the discount factor, the interest rate and the joint distributions of all of these variables have the potential to impact the rent-to-price ratio. Clearly the rent-to-price ratio is only stationary in-so-far as the expression on the right is stationary.

Researchers have faced two difficulties in studying the above equation: 1.) The time series on house prices is relatively short. 2.) Both rents and prices have been available only as indexes and not as levels leading to severe identification problems (see Davis and Martin 2005 for a detailed discussion on this point). One of the major contributions of this paper is to extend the time series for house prices and rents back from 1970 to 1960. While only providing an additional decades worth of data, the addition of the 1960s effectively gives us a second observation on the behavior of the rent-to-price ratio during an episode of relative stability and low interest rates. In addition, by using the Decennial Census of Housing (DCH) to impute rents and measure prices directly for owner-occupied properties, we are able to estimate a “levels” series for both prices and rents. The data section below details the two-stop procedure we use to infer rents and estimate prices. Summarizing, in our first step we use micro data from each of the 1960, 1970, 1980, 1990, and 2000 Decennial Census of Housing (DCH) to impute rents and measure prices directly for owner-occupied properties. We impute rents to owner-occupied properties based on rental prices of similar structures that are rented. Then, taking these DCH estimates of rents and prices as “truth”, we use indexes of the growth rates of rents and
prices (specifically the BLS index for tenant rents and the CMHPI repeat-transactions house price index) to interpolate between the DCH benchmark calculations as well as extrapolate from 2000 to the end of 2004. We show that the BLS tenant-rent index and the CMHPI appear to both severely underestimate price changes, especially before 1990, and we adjust the BLS and CMHPI indexes for these biases to ensure our quarterly rent and price interpolations are consistent with our DCH benchmarks.

We find that rent-to-price ratio has ranged between 3.9 percent (its current low) and 6.5 percent over the period 1960 to 2004. Perhaps our most important result is that the level of the rent-to-price ratio, despite its large variance, appears to exhibit a downward trend over the sample period. While we can not exactly identify the reason for the trend, we show in model simulations that this result is consistent with a general easing of borrowing constraints and greater efficiencies in mortgage markets which have occurred in the latter half of the 20th century.

Further, we show that the recent decline in the rent-to-price ratio is largely attributable to a reduction in nominal interest rates and that the recent decline is actually smaller than occurred in either 1979 or 1987 (the previous two real estate peaks). In other words, the rent-to-price ratio fell much more from its peak to its trough in the last two episodes. Finally, using only information available in time $t$ (and assuming constant covariance terms) we infer time $t+1$ expectations of house price increases and show that not only have these expectations been relatively stable over time, but they have been almost constant since 1986. Implying that if households are too optimistic over the future capital gains, they began to hold these expectations in the 1986. Therefore, while its possible that housing has been fundamentally mis-priced by agents for two decades, it seems to us unlikely. We show that the most puzzling period over our sample is the period surrounding the interest rate hikes in 1982. Over this episode house prices did not fall at all in nominal terms and only fell slightly in real terms. If there was any episode in the history of the United States from 1960 to the current where households where euphoric over expected capital gains it was then.

2 Bibliography

References


