Cointegration and Causal Relations in Mortgage and Capital Markets

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Abstract

In years past, credit rationing resulted in the primary mortgage market being "segmented" from national capital markets. Some research suggests that the deregulation of depository institutions in the early 1980s along with the exponential growth in the secondary mortgage market, has resulted in a primary mortgage market more fully integrated with national capital markets. This study employs Granger Causality to test primary and secondary mortgage market segmentation. Our findings support the conclusion that causality is unidirectional from the treasury market to the primary and secondary mortgage market. The results also indicate that mortgage market speed of adjustment increased significantly by the end of the decade.

1. Introduction

Historically, a large change in capital market rates has resulted in mortgage rates changing more slowly and by a smaller amount. Home buyers and real estate brokers frequently complain about the failure of mortgage rates to follow declines in treasury and corporate yields. Commentary in the financial press often refers to the "stickiness" of the mortgage market (Koretz 1988). Much of the literature on mortgage markets has tended to focus on the economic effects of "credit rationing" rather than empirical measurement of mortgage market segmentation. Except for Roth (1988), most research attempting to measure the relationship between the mortgage and capital market has employed data sets that ended in 1981 or earlier (Guttentag and Beck 1970; Haney 1988; Klaman 1961).

This study uses monthly data for the period 1970–1987 and weekly data for the period 1983–1987 to examine the comovement of mortgage and treasury yields. It employs Granger Causality to test for segmentation in the primary and secondary mortgage market relative to the treasury market (Granger 1969). Because mortgage market segmentation is consistent with private credit rationing, results of the causality tests will determine whether mortgage markets have become more fully integrated with national capital markets over the period 1970–1987.
The following section briefly reviews the literature on mortgage market segmentation and spreads, the third section discusses the methodology and presents the results of the tests, and the final section is a summary of our conclusions.

2. Mortgage market segmentation and mortgage-agency-treasury yield spread

In years past, most mortgage credit was supplied regionally. Mortgage rates tended to reflect the supply and demand of mortgage credit within the region and did not respond completely to changes in national capital markets. During tight money periods, many lenders chose not to increase mortgage rates enough to reduce the number of loan applications and, instead, developed procedures for rationing the available supply of funds (Anderson and Oates 1982).

The Depository Deregulation and Monetary Control Act of 1980 as well as the Garn-St Germain Depository Institutions Act of 1982 significantly altered the mortgage market environment. The former phased out Regulation Q while the latter gave new loan and investment powers to depository institutions. This legislation coincided with new pass-through programs initiated by the Federal Home Loan Mortgage Corporation (FHLMC) and the Federal National Mortgage Corporation (FNMA). Between 1981 and 1986 pass-through securities issued by the Government National Mortgage Association (GNMA), FNMA and FHLMC grew from less than $25 billion to $250 billion. By the end of 1988, the outstanding balance of pass-through securities accounted for almost 25 percent of total mortgage debt in the United States (Becketti 1989). Depository institution deregulation as well as the exponential growth in pass-through securities during the 1980s should have resulted in a mortgage market more fully integrated with national capital markets.

The finance literature suggests that many yield series are related in some fashion. Bond market spread transactions are predicated on the assertion that yields may drift apart in the short run, but economic factors intervene to bring them back together over the long run. The earliest empirical work testing mortgage market segmentation was conducted by Klaman (1961) and Guttentag and Beck (1970). Klaman estimated the length of the mortgage market lag at four quarters for the 1947-1956 period. Guttentag and Beck found the lag for 1954-1960 varied from four to seven months. More recently, Roth tested the comovement of mortgage and treasury markets and found that the degree of comovement had increased significantly during the 1980s (Nothaft and Wang 1990).

Haney used cross-spectral analysis to examine the relationship between treasury and mortgage markets for the period 1973–1981. He concluded that while the secondary mortgage market has become integrated with bond markets, the primary mortgage market “remains segmented” (Haney 1988). He found that changes in the mortgage market lag treasury yield changes by about three weeks.

Haney used GNMA bond equivalent yields rather than prices in his test of secondary mortgage market segmentation. Because of the prepayment assumption, Brennan and Schwartz assert that any findings based on bond equivalent yields must be interpreted with caution (Brennan and Schwartz 1985). Figure 1 graphs the weekly yield spread between the ten-year treasury, the bond equivalent yield on the eleven percent coupon