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Original Articles

Interest rate pass through and asymmetries in adjustable rate mortgages

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Abstract

This study extends the recent work on interest rate pass through from the federal funds rate to mortgage rates. The Enders–Siklos (2001) momentum threshold autoregressive (MTAR) model is used to test for cointegration and asymmetric adjustment in adjustable rate mortgages for newly built and previously owned homes over the federal funds targeting period 1987:2 to 2005:6. Based on the MTAR specification, the respective adjustable rate mortgages and the federal funds rate are cointegrated but with incomplete interest rate pass through. The results also indicate asymmetries in the response of the adjustable rates to changes in the federal funds rate.

Notes

[1] Hadjimichalakis (1981), Arak et al . (1983), Goldberger (1984), Forbes and Mayne (1989), Levine and Loeb (1989), Mester and Saunders (1995), Dueker (2000), Thacz (2001), Atesoglu (2003), Thompson (2006), and Payne and Waters (2006) examine the US prime rate. Cook and Hahn (1989), Moazzami (1999), and Sarno and Thornton (2003) analyse treasury rates. Diebold and Sharpe (1990), Hannan and Berger (1991), Neumark and Sharpe (1992), and Hutchison (1995) investigate deposit rates. Atesoglu (2004) focuses on long-term corporate bond rates and treasury securities. On the international front, the issue of interest rate pass through has been explored by Scholnick (1996, 1999), Heffernan (1997), Frost and Bowden (1999), Moazzami (1999), Winker (1999), Lim (2001), Sander and Kleimeier (2002, 2004), Hofmann and Mizen (2004), de Bondt (2005), and Humala (2005).

[2] Sellon (2002) provides an excellent description of the evolution of the financial services sector and the transmission of monetary policy.

[3] These points are mentioned in Payne (2006a, b).

[4] Stiglitz and Weiss (1981) discuss the role of information asymmetries in credit rationing. Adjustment costs can be attributed to information search costs, menu costs of adjusting rates, adverse selection and moral hazard, not to mention consumer inertia and switching costs.

[5] Scholnick (1999 and citations therein) provides a survey of the various explanations for interest rate rigidity and the adjustment processes of lending and deposit rates. These explanations have been reiterated by Payne (2006a, b) and Payne and Waters (2006).

[6] The methodology parallels the work by Payne (2006a, b) as well as Payne and Waters (2006) for the empirical analysis to follow.

[7] In addition to the differences in the null hypothesis between the ADF and PP unit root tests and the KPSS test, the ADF unit root test controls for higher-order serial correlation with the addition of lagged difference terms while the PP unit root test uses a nonparametric approach in controlling for higher-order serial correlation.

[8] Perron's (1997) endogenous unit root test was performed on the respective adjustable rates and the federal funds rate. The break date selected was based on the minimum ADF test statistic for testing the null hypothesis of a unit root. Though each series exhibited a break (adjustable rate on newly built homes, 1994 : 2; adjustable rate on

previously owned homes, 1995 : 12; and federal funds rate, 1993 : 11), each series still contained a unit root. The test statistics associated with the null hypothesis of a unit root were −4.29 for the adjustable rate on newly built homes, −4.07 for the adjustable rate on previously owned homes and −4.25 for the federal funds rate, each <10% critical value of −4.82 (Perron, 1997, Table 1, p. 362).

[9] Given the power of the standard ADF cointegration test of the residuals from the cointegrating regression decreases in the presence of a structural break, the Gregory and Hansen (1996) cointegration procedure was estimated. The Gregory and Hansen (1996) procedure, which allows for an endogenously determined break in the intercept, slope, and both the intercept and slope of the cointegrating equation, did not reveal any statistically significant breaks. The results are available upon request.

[10] Enders and Siklos (2001) note that the MTAR model exhibits greater power than the Engle–Granger test. Also, the TAR model has lower power when compared to the Engle–Granger test.

[11] In the case of the adjustable rate mortgage on newly built homes, there is evidence of serial correlation at the 10% level.

[12] In this case, weak exogeneity occurs when changes in the federal funds rate do not react to the disequilibrium error terms but may still be influenced by lagged changes in the adjustable rate. For further discussion of the various forms of exogeneity see Engle et al . (1983).

Related Research Data

Testing for a unit root in time series regression
Source: Biometrika
Symmetric versus asymmetric interest rate adjustment mechanisms
Source: Economics Letters
Cointegration and Threshold Adjustment
Source: Journal of Business and Economic Statistics
Post-Deregulation Bank-Deposit-Rate Pricing: The Multivariate Dynamics
Source: Journal of Business and Economic Statistics
A friction model of the prime
Source: Journal of Banking & Finance

Convergence in euro-zone retail banking? What interest rate pass-through tells us about monetary policy transmission, competition and integration

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Endogenous thresholds and tests for asymmetry in US prime rate movements

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