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Interest rate pass-through and financial crises: do switching regimes matter? the case of Argentina

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Abstract

The dynamic relationship between a money market (interbank) rate and different short-term lending rates is analysed by measuring the pass-through process between these rates in the Argentinean banking system. Neither linear single-equation modelling nor linear multi-equation systems capture efficiently this relationship. The presence of several episodes of financial crises alters the speed and degree of response to shocks in the interbank rate. Thus, a Markov switching VAR model shows that under normal financial conditions short-run stickiness is higher for those rates on loans with higher credit risk. But it also shows that when there is a high-volatility scenario, the pass-through increases considerably for all interest rates. The MSIAH(2)-VAR(1) identifies correctly periods of financial distress (in which regime switch occurs).

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Notes

For an application of these models to the euro area see Corvoisier and Gropp (2001).

For the euro area, Ehrmann et al. (2001) find that credit market features (in particular, bank liquidity) explain the response of bank loan supply to monetary policy shocks. See Lensink and Sterken (2002) for an analysis on small banks on the euro zone.

Haan (2001) finds for The Netherlands a more active lending channel of monetary transmission for firms than for households. Kakes and Sturm (2002) find for Germany that big banks are able to shield their loans portfolio against monetary contractions. These studies focus on the effects of monetary shocks in loan supply rather than in loan interest rates. For interest rates, Heffernan (2002) shows that financial institutions exhibit indeed different pricing behaviour depending on the bank product.

A seminal empirical research on the relationship between bank pricing and market concentration is found in Berger and Hannan (1989). A more recent contribution from Heffernan (2002) shows for the UK banking system that during the 1990s the presence of perfect competition is largely ruled out.

See, for example, Altunbas et al. (2002); Bondt (2002), and Mojon (2000) for a revision of this evidence in Europe; Moazzami (1999) for Canada and USA; Scholnick (1996) for Malaysia and Singapore; and Alfaro et al. (2002) for Chile. For a discussion on evidence about the absence of a credit channel for the USA see Morris and Sellon (1995).

The concept has been generally applied to a very short-term money market interest rate and rates for government-issued securities (such as bonds). But this does not need

to be the only case.

Alternatively, the segmented market hypothesis considers them highly imperfect substitutes and so interest rates spreads are determined by demand and supply in each end of the term structure.

A stationary term premium under the expectations hypothesis is usually associated to the degree of efficiency of the relevant financial market.

See Freixas and Rochet (1997), Chapter 3, for a description of such a model. A basic oligopolistic model of the banking industry will exclude initially any mention of risk, so that no term or risk premium is considered. Here it is also excluded the extreme cases of perfect competition and monopoly.

Bondt (2002), using a similar ECM, allows the cointegrating vector to be generally determined as (1, β), being β the final or long-term pass-through.

For Japan, Girardin and Horsewood (2001) use a MS-VAR with three regimes to analyse the monetary transmission mechanism and the pass-through from money market rates to bank loan rates.

The evolution of regimes could be inferred from the data.

If the probabilities were independent of the previous occurring regime, then the model would be a simple (not Markov) switching model. There would not be persistence in the states. See Hansen (1992).

Erlandsson (2002) include also some conditional heteroscedasticity for each regime (GARCH-effects) based on failure of a switching regime to reduce autocorrelation in the standardized squared residual to non-significant levels.

Kamin and Ericsson (2003) estimate dollarization based on net currency flows between Argentina and the USA, according to US travelling information. It shows that dollar currency holdings, up to 1992, amount to as much as all dollar deposits and all peso money together.

Catao based his results on estimating a partial equilibrium model of the banking system in a dual currency economy with imperfect competition in the credit markets.

Although data on these rates after that period is available, the collapse of the currency board has made information on credits granted to the non-financial private sector by Argentinian banks not reliable.

Data for previous years is unavailable, in particular, from the hyperinflation period.

Results from real interest rates analysis are qualitatively similar to results from nominal rates. They are not reported here, but are available from the author on request.

A study from the Banco Central of Argentina (1998) find that non-stationarity could not be rejected by Dickey–Fuller tests for similar interest rates than in this paper. However, the study could not conclude that interest rates contain a unit root, since it seemed that DF test were not distinguishing between the presence of a unit root and long persistence in interest rates.

Following Maddala and In-Moo (1998).

For a discussion of a simple procedure for detecting additive outliers that does not require full specification of the dynamic model and that does not require estimates of serial correlation parameters, but relies on the unit root null hypothesis, see Vogelsang (1999).

Nelson et al. (2001) show that not only the ADF test but also those tests designed to be robust to a single structural break in trend growth under the alternative lack power to distinguish an I(0) process with Markov-switching breaks in trend growth from an I(1) process. For an interesting discussion of unit root test using economic theory, rather than just statistics, see Chumacero (2001).

Standard information criteria (Schwarz and Hannan-Quinn) suggest one as the number of lags. Lütkepohl (1991) argues that, if the correct VAR order is a priority, it is reliable to choose these consistent criteria for the lag order.

If another lag is added, then equation for bills shows a significant interbank parameter.

Criteria for the estimated model to be congruent are the residuals not being serially correlated; no residuals heteroscedasticity; and, innovations normally distributed (Patterson, 2000).

Different dates for including one single dummy were tried, from December 1994 up to May 1995. However, the largest change (but for the personal rate) corresponds to

March 1995. The alternative of only using a dummy variable for this date against using several for all the possible months was preferred, since the latter option does not improve upon the results, neither quantitatively nor qualitatively.

Notice that a MS-VAR could be seen as a generalization of a VAR model. Thus, the linear VAR could be treated as the restricted model.

For an introduction to Ox see Doornik and Ooms (2001). For a review of Markov switching VAR using MSVAR for Ox see Krolzig (1997).

Models with shifts in the intercept are consistent with a smooth adjustment of the time series after the change in regime (as it might be the case for interest rates), while that models with shifts in the mean are more consistent with an once-and-for-all jump in the time series (Krolzig, 1997).

Espinosa-Vega and Rebucci (2002) find evidence for Chile, that neither changes in monetary policy targeting nor in exchange rate regime affects significantly the pass-through, but that there is indeed some evidence that the South East Asian financial crisis affected the interest rate pass-through in Chile.