Systemic risk in the major Eurobanking markets: Evidence from inter-bank offered rates

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Abstract

In Eurobanking, the London Interbank Offered Rate is often assumed to be the reference rate for Eurocurrency loan transactions. A debate continues as to whether or not dominance by London is evident through the movements in interbank offered rates and whether any adverse shocks experienced there are felt through the other major Eurobanking centres of New York and Tokyo. This study finds that in the longer-term New York is the driver of both the London and the Tokyo interbank lending rates. The more important issue is that the interbank offered rates in London, New York and Tokyo show a long-term cointegrating relationship. Whilst Western banking is incestuous in terms of interbank lines of credit, support is nevertheless provided for rational expectations and market efficiency. However, cointegration also constitutes interdependence and in turn shows evidence of systemic risk (the threat of contagion) in these centres is provided. The implications for future research into global financial stability are alluded to in the conclusion.

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1. Introduction

A Eurocurrency is a freely convertible currency deposited in a bank outside its country of origin. For example, United States Dollars (USDs) deposited in London Eurobanks (those banks that accept deposits and make loans in foreign currency. Eurodollars could also be placed on deposit with a foreign branch of a domestic United States (US) bank: Shapiro, 2002). The Eurocurrency market consists of these Eurobanks and can also be referred to as the Eurobanking
market. London has been the historical centre of the market (Viney, 2001), however other major financial centres (such as in New York and Tokyo) are regarded these days as being part of the Eurobanking market largely due to the strength of the representation of their bank subsidiaries or branches in London. Interbank loans in USDs, Yen and Sterling collectively make up over 60% of the Eurocurrency market with the USD being the dominant currency at 45% (Melvin, 2000).

In this study the US, United Kingdom (UK) and Japanese interest rates are synonymous with New York, London and Tokyo Eurocurrency markets and interbank offered rates.

Eurobanks borrow from and lend to each other via interbank lines of credit and on-lend to deficit units in large amounts (usually the equivalent of USD1 million or more) at interest rates that depend upon the denominated currency, the maturity of the loan and the credit worthiness of the borrower. The interest rates are based on and are adjusted according to movements in the interbank offered rates applying in each major market for each major currency with the adjustments occurring each 6-months or each year (Madura, 1998). Because of the historical dominance of the London market, the London Interbank Offered Rate (LIBOR) for the various currencies is the reference rate for other markets (Viney, 2001). Though systemic risk in banking systems is not a new concept (Kaufman, 1994; Oort, 1990; Swary, 1986), it is suggested again that the extent of the interbank lines of credit for the major Eurocurrency loans makes the Eurobanking market vulnerable to systemic risk where the collapse of one major international bank could lead to a domino effect collapse of others with subsequent widespread international financial instability.

In this study, a multivariate cointegration methodology is used to analyse the relationships among interbank offered rates for USDs, English Pounds and Japanese Yen. The degree of integration is captured through an error–correction model (ECM) and by out of sample tests specified by variance decompositions and impulse response functions. Nominal interest rates are used as it is assumed in this study that real interest rate parity holds in the long-term. That is, covered interest arbitrage between the Eurobanks in the short-term continues until interest rate parity is re-established in the long-term and this will be the case if the interbank money markets being examined are integrated² (Click & Coval, 2001; Kugler & Neusser, 1993³).

Following on from Fama (1976), an efficient interbank lending market will be one in which interest rates always fully reflect available information. That is, the spot and forward rates produced in the market do not provide an opportunity for ex ante profit opportunities, or, unusual profits cannot be made by speculators who make interest rate forecasts on the basis of similar information sets. Thus, the additional questions are asked as to whether or not the Eurobanking markets are efficient and whether or not the rational expectation hypothesis applies. That is, do interbank interest rates in London significantly and systematically over or under predict those in New York and Tokyo or vice versa in the long-term?

2. Literature review

The underlying theme of this paper is contagion (or the threat of systemic bank failure) through the interbank lending markets but firstly, it is useful to examine how other studies using different variables and methods have examined systemic economic and financial contagion

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¹ Oort (1990) did take the view that bank burials in developed countries were few despite the existence of systemic risk. This was due to a general adherence to capital adequacy guidelines by OECD banks.

² Real interest parity is usually assumed to hold if capital markets are integrated.

³ It is shown that deviations from real interest parity in Eurocurrency deposit rates for the period 1980 to 1991 are substantial in the short-term disappearing rapidly within three to four months as long-run equilibrium is achieved.
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