ELSEVIER

International Review of Economics and Finance 16 (2007) 101–112

International Review of Economics & Finance

www.elsevier.com/locate/iref

Fiscal, monetary policy and the conditional risk premium in short-term interest rate differentials: an application of Tobin's portfolio theory

Thomas J. Flavin [a,*], Michele G. Limosani [b]

[a] *Department of Economics, National University of Ireland Maynooth, Co. Kildare, Ireland*
[b] *Universita degli Studi di Messina, Facolta di Scienze Politiche, Dipartimento di Economia, Via T. Cannizzaro, is.278, 98122 Messina, Italy*

Received 20 October 2003; received in revised form 15 September 2004; accepted 5 October 2004
Available online 4 January 2005

Abstract

This paper proposes a Multivariate-Arch in Mean model to analyze the potential channels through which domestic fiscal and monetary policy as well as changes in the international economic environment may affect interest rate differentials across countries. This technique is illustrated by analyzing the behavior of short-term interest rates in a number of European countries prior to the introduction of the common currency. The key feature of our results is that macroeconomic variables exert both a direct and indirect influence on the short-term interest rate differential. This indirect effect is captured through the conditional volatility of the differential, which is itself a statistically significant determinant of the level of the differential. This relationship is likely to be overlooked by more traditional models that focus solely on the first order moments of the process.

JEL classification: E43; E44; G15
Keywords: Interest rate differentials; Macroeconomic effects; M-GARCH

* Corresponding author. Tel.: +353 1 7083369; fax: +353 1 7083934.
E-mail address: thomas.flavin@may.ie (T.J. Flavin).

1059-0560/$ - see front matter © 2004 Elsevier Inc. All rights reserved.
doi:10.1016/j.iref.2004.10.006

1. Introduction

It is quite common, and indeed consistent with financial economic theory, to observe interest rate differentials across countries. These differentials also tend to vary over time, telling us that some factor, or set of factors, is causing this variation. These time-varying differentials are most usually explained in terms of a (conditional)[1] risk premium attached to the debt instruments of one country above another, either due to economic or political uncertainty.[2] However, until we have a better understanding about the source of the risk premium, attempts to adequately explain its existence and predict its future movements will prove difficult to achieve. The aim of this paper is to analyze the potential channels through which macroeconomic variables may affect interest rate differentials across countries. We identify a set of potentially important variables from the work of Tobin and examine their importance for explaining short interest rate differentials within Europe during the period of the EMS. There will undoubtedly be other candidate variables but this work offers a first attempt to model the link between interest rate differentials and the wider macroeconomic environment.[3]

Portfolio theory implies a risk- return trade-off and therefore investors have to be compensated for holding more risk by earning a higher return on government debt instruments. Asset risk is usually measured in terms of the (conditional) volatility of its return but it is our conjecture that other risk sources may also contribute to the overall risk of an asset. Consequently, volatility in the wider economic environment may be transmitted to government bonds. Such contagion effects will cause any potential investor to seek even more compensation in the form of a greater required return. Tobin's work on portfolio selection provides some insight to identify potential sources of the risk premium. These factors have both a direct and indirect impact on the level of the differential. The indirect or second-order effect stems from the impact of the conditional volatility on the risk premium. Our methodology investigates the empirical evidence of such effects. Kim and Kim (2003) have already noted their importance from a theoretical modeling perspective. They stress the potential influence of second-order effects as a stimulus for monetary policy theorists. The presence of a conditional risk premium for currency markets has already been documented by Hodrick (1987) and for futures markets by Hess and Kamara (2002).

In order to analyze and identify the potential channels by which macroeconomic variability may influence both the conditional mean and conditional volatility processes of the short-term interest rate differentials, we propose a Multivariate Autoregressive Conditional Heteroscedasticity (M-ARCH) in-mean model. This family of models has been extensively applied to assessing the impact of macroeconomic sources of risk in currency markets (Wickens & Smith, 2002), in currency futures markets (Baum & Barkoulas, 1996) and in Treasury bill futures markets (Hess & Kamara, 2002). The factors we employ can be loosely interpreted as being proxies for monetary and fiscal policy as well as changes in the international economic environment. By jointly modeling the financial asset returns and the macroeconomic variables, we can immediately assess the influence of

[1] Hodrick (1987) shows for currency markets that even when the unconditional risk premium is zero, this does not rule out the existence of a non-zero conditional risk premium.

[2] For further discussion, see Frankel and MacArthur (1988) and Limosani (2000).

[3] In an earlier paper, Flavin and Limosani (2000) use a univariate ARCH model to show that the debt/GDP ratios of European countries helped to explain movements in risk premia vis-à-vis Germany.