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Year-end and quarter-end effects in the term structure of sterling repo and Eurepo rates

Mark D. Griffiths^a, Vladimir Kotomin^b, Drew B. Winters^{c,*}

^a Jack Anderson Professor of Finance, Miami University, United States

^b University of Wisconsin–Eau Claire, United States

^c Rawls Professor of Finance, Texas Tech University, United States

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ABSTRACT

Griffiths and Winters [Griffiths, M., Winters, D., 1997. On a preferred habitat for liquidity at the turn-of-the-year: evidence from the term-repo market, *Journal of Financial Services Research* 12, 21–38] find a year-end preferred habitat for liquidity for US repo rates, and, later [Griffiths, M., Winters, D., 2005. The-turn-of-the-year in money markets: tests of the riskshifting window dressing and preferred habitat hypotheses, *Journal of Business* 78, 1337–1364] find a similar preferred habitat for US money market instruments. Kotomin et al. [Kotomin, V., Smith, S., Winters, D., 2008. Preferred habitat for liquidity in international shortterm interest rates, *Journal of Banking and Finance* 32, 240–250] document the preferred habitat in LIBOR for the major world currencies, excluding the British pound. We examine the robustness of these results using pound sterling and euro repo rates and find a year-end preferred habitat for liquidity in the euro repo rates. The British interest rates continue to behave differently, and we provide a possible explanation as to why this occurs.

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1. Introduction

Standard explanations for the term structure of interest rates include (1) expectations theory, (2) liquidity preference theory, and (3) market segmentation theory with its corollary of preferred habitats. Modigliani and Sutch (1966) develop the preferred habitat theory to explain the twists in the term structure of interest rates observed during the Kennedy Administration. Later, Roll (1970, p. 38) states

* Corresponding author. Tel.: +1 806 742 3350; fax: +1 806 742 3197.
E-mail address: drew.winters@ttu.edu (D.B. Winters).

that “(p)references for certain maturities occur because fixed-payment securities are used as hedges against the payment streams of assets or liabilities that must be held in the course of business but which entail risk of interest rate fluctuations that businessmen do not care to incur.” *Ogden (1987)* further notes that cash payment streams concentrate payments around the turn of the month, with the largest concentration at the turn of the year. We investigate whether year-end and quarter-end preferences for liquidity are strong enough to cause economically significant changes in interest rates in pound sterling and euro general collateral repurchase agreements.

Griffiths and Winters (1997) find a year-end preferred habitat for liquidity in the term structure of US general collateral government repo rates across one-week, two-week, three-week, and one-month terms. Elsewhere in the money markets, *Griffiths and Winters (2005)* find a year-end preferred habitat in the US money market one-month maturities for commercial paper, banker’s acceptances, negotiable certificates of deposit, euro-dollar deposits, and US dollar LIBOR, while *Downing and Oliner (2007)* find an increase in the year-end term premia in the term structure of US commercial paper rates. *Kotomin et al. (2008)* extend *Griffiths and Winters (2005)* and find the same year-end preferred habitat in LIBOR in the major world currencies—yen, euro, German mark, and Swiss franc—in addition to the US dollar, but do not find strong evidence of a preferred habitat in pound sterling. With year-end preferred habitats common throughout the money markets of most of the world’s major economies and across the various types of money market instruments, we revisit British interest rates to determine if the lack of a year-end preferred habitat is robust or specific to pound sterling LIBOR. For comparison purposes, we also analyze the behavior of the euro repo (Eurorepo) rate—the rate at which one prime European bank offers funds to another in exchange for receiving Eurorepo General Collateral instruments as collateral.¹

We examine the short end of the term structure for euro and pound sterling repo rates for year-end and quarter-end preferred habitats and find strong evidence of a year-end preferred habitat in one-week, two-week, three-week, and one-month Eurorepo yields. The quarter-ends in Eurorepo rates are suggestive of preferred habitats, but the rate changes are not economically significant. Our results on pound sterling repo rates do not support year-end or quarter-end preferred habitats as customarily defined. However, additional testing indicates that the effective UK business year-end may actually be prior to Christmas and the calendar year-end. Some modest evidence suggests that some rate pressures exist during the last few business days before Christmas. However, upticks in British repo rates do not persist long enough to support the hypothesis of a preferred habitat for liquidity, and they are more indicative of investors entering the market to take advantage of the higher rates. Hence, unlike in the US payment system, the generally reduced concentration of year-end cash obligations in the British payment system permits the existence of increased interest rate arbitrage. Our results are consistent with findings of previous research and continue to suggest that the behavior of British money market rates at year-ends and quarter-ends is structurally different from other major economies.

2. Explanations for calendar timing effects and testable implications

Tax-loss selling and window dressing are routinely offered as explanations for the turn-of-the-year effect in equities. Tax-loss selling does not apply to money market instruments because, absent default, money market instruments always provide taxable gains. *Musto (1997)* offers flight-from-risk window dressing as an explanation for the higher US commercial paper rates observed at the year-end. Because window dressing is based on disclosure requirements, any effect caused by window dressing must span disclosure dates. *Griffiths and Winters (1997, 2005)* show that the higher year-end rates in the US money market do not persist across the year-end disclosure date and offer year-end preferred habitats for liquidity to explain the observed rate pattern.

A preferred habitat for liquidity is based on investor preferences for instruments that mature before cash obligation dates, so the funds are available to the investor to cover known cash obligations. *Ogden (1987)* asserts that large amounts of known cash obligations cluster around the year-end, and *Griffiths and Winters (2005)* note that these obligations need not align with the last business day of the year.

¹ The Eurorepo is sponsored by the European Banking Federation, with the support of the European Repo Council, and completes the range of existing benchmark indices, such as Euribor, Eonia, and the Eonia Swap Index.

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