Online Appendix
for
"The Liquidity Premium of Near-Money Assets"

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Appendix A provides detail on the log-linear approximation of the model, Appendix B provides some evidence on the time-series properties of implicit and explicit interest on demand deposits and interest-bearing transaction accounts. Appendix C extends the baseline model to include currency in households' stock of liquid assets. Appendix D describes the data. Appendix E addresses tax issues, Appendix F presents GMM estimates of $\rho$, Appendix G presents coefficient estimates from first-stage regressions, and Appendix H provides information on deposit quantities and interest rates in UK around the introduction of interest on reserves.

## A. Log-linear approximation

Define

$$\Delta_t^d \equiv \frac{i_t(1-\delta)}{1+i_t}, \qquad \Delta_t^b \equiv \frac{i_t - i_t^b}{1+i_t}, \qquad \Delta_t \equiv \frac{i_t}{1+i_t}. \tag{1}$$

Now consider a log-linear approximation of the household first-order conditions (6), (5), with supply of deposits (8) and market clearing substituted in, around steady state values of $m$, $b$, $Y$, $\lambda$, $\Delta$, $\Delta^d$, and $\Delta^b$ denoted $\bar{m}$, $\bar{b}$, $\bar{Y}$, $\bar{\lambda}$, $\bar{\Delta}$, $\bar{\Delta}^d$, and $\bar{\Delta}^b$. Then,

$$\eta_{dc}\hat{Y} + \eta_{dm}\hat{m} + \eta_{db}\hat{b} + \eta_{d\lambda}\hat{\lambda}_t = \eta_{di}\hat{\imath}_t, \tag{2}$$
$$\eta_{bc}\hat{Y} + \eta_{bm}\hat{m} + \eta_{bb}\hat{b} + \eta_{b\lambda}\hat{\lambda}_t = \eta_{bi}(\hat{\imath}_t - \hat{\imath}_t^b), \tag{3}$$

where

$$\eta_{dc} = -\alpha\frac{\bar{Y}u_{cc}(\bar{Y})}{u_c(\bar{Y})^2}\frac{\partial \log Q}{\partial d}, \qquad \eta_{bc} = -\alpha\frac{\bar{Y}u_{cc}(\bar{Y})}{u_c(\bar{Y})^2}\frac{\partial \log Q}{\partial b},$$

$$\eta_{dm} = \frac{\alpha\bar{m}}{u_c(\bar{Y})}\frac{\partial^2 \log Q}{\partial d\partial m}, \qquad \eta_{bm} = \frac{\alpha\bar{m}}{u_c(\bar{Y})}\frac{\partial^2 \log Q}{\partial b\partial m},$$

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$$\eta_{db} = \frac{\alpha\bar{b}}{u_c(\bar{Y})}\frac{\partial^2 \log Q}{\partial d \partial b}, \qquad \eta_{bb} = \frac{\alpha\bar{b}}{u_c(\bar{Y})}\frac{\partial^2 \log Q}{\partial b^2},$$

$$\eta_{d\lambda} = \frac{\alpha}{u_c(\bar{Y})}\frac{\partial^2 \log Q}{\partial d \partial \lambda}, \qquad \eta_{b\lambda} = \frac{\alpha}{u_c(\bar{Y})}\frac{\partial^2 \log Q}{\partial b \partial \lambda},$$

$$\eta_{di} = (1-\delta)(1-\bar{\Delta}^d), \qquad \eta_{bi} = 1-\bar{\Delta}^b.$$

Now we solve the household first-order conditions (6), (5), at steady-state values, to express $\bar{\lambda}$ and $\alpha$ as functions of $\bar{\Delta}^d$ and $\bar{\Delta}^b$,

$$\bar{\lambda} = \frac{\bar{\Delta}^b}{\bar{\Delta}^b + \bar{\Delta}^d \bar{b}^{\rho-1}(\bar{m}\phi)^{1-\rho}}, \tag{4}$$

$$\alpha = u_c(\bar{Y})\left(\bar{\Delta}^d \bar{m}\phi - \bar{\Delta}^b \bar{b}\right). \tag{5}$$

Evaluating the derivatives above, substituting in the solutions for $\bar{\lambda}$ and $\alpha$, we can solve the system (2) and (3) to obtain

$$\hat{\imath}_t - \hat{\imath}^b_t = \beta_i \rho \hat{\imath}_t + \beta_\lambda \hat{\lambda}_t - \beta_b (1-\rho)\hat{b}_t + \beta_y (1-\rho)\hat{Y}_t, \tag{6}$$

$$\hat{m}_t = -\gamma_i \hat{\imath}_t - \gamma_\lambda \hat{\lambda}_t - \gamma_b \rho \hat{b}_t + \gamma_y \hat{Y}_t, \tag{7}$$

where

$$\beta_i = (1-\delta)\frac{(1-\bar{\Delta}^d)\bar{\Delta}^b q}{(1-\bar{\Delta}^b)(\bar{\Delta}^d q + \bar{\Delta}^b(1-\rho))}, \qquad \beta_\lambda = \frac{q^{-\rho}(\bar{\Delta}^d q + \bar{\Delta}^b q^\rho)^2}{(1-\bar{\Delta}^b)(\bar{\Delta}^d q + \bar{\Delta}^b(1-\rho))},$$

$$\beta_b = \frac{\bar{\Delta}^b(\bar{\Delta}^b + \bar{\Delta}^d q)}{(1-\bar{\Delta}^b)(\bar{\Delta}^d q + \bar{\Delta}^b(1-\rho))}, \qquad \beta_y = -\frac{\bar{Y} u_{cc}(\bar{Y})\bar{\Delta}^b(\bar{\Delta}^b + \bar{\Delta}^d q)}{(1-\bar{\Delta}^b)(\bar{\Delta}^d q + \bar{\Delta}^b(1-\rho))},$$

and

$$\gamma_i = (1-\delta)\frac{(1-\bar{\Delta}^d)(\bar{\Delta}^b + \bar{\Delta}^d q)}{\bar{\Delta}^d(\bar{\Delta}^d q + \bar{\Delta}^b(1-\rho))}, \qquad \gamma_\lambda = \frac{q^{-\rho}(\bar{\Delta}^d q + \bar{\Delta}^b q^\rho)^2}{\bar{\Delta}^d q(\bar{\Delta}^d q + \bar{\Delta}^b(1-\rho))},$$

$$\gamma_b = \frac{\bar{\Delta}^b}{\bar{\Delta}^d q + \bar{\Delta}^b(1-\rho)}, \qquad \gamma_y = -\frac{\bar{Y}(\bar{\Delta}^b + \bar{\Delta}^d q)u_{cc}(\bar{Y})}{(\bar{\Delta}^d q + \bar{\Delta}^b(1-\rho))u_c(\bar{Y})},$$

with

$$q \equiv \frac{\bar{m}\phi}{\bar{b}}.$$

To assess the magnitudes of the coefficients on $\beta_i$ and $\beta_b$, we can approximate using fact that $\bar{\imath}^d$ is substantially smaller than $\bar{\imath}^b$, and, likely, $q > 1$ (or, at least, $q$ is not just a small fraction of 1). We obtain

$$\beta_i \approx \frac{\bar{\imath} - \bar{\imath}^b}{(1+\bar{\imath}^b)\bar{\imath}}, \qquad \beta_b \approx \frac{\bar{\imath} - \bar{\imath}^b}{(1+\bar{\imath}^b)}. \tag{8}$$

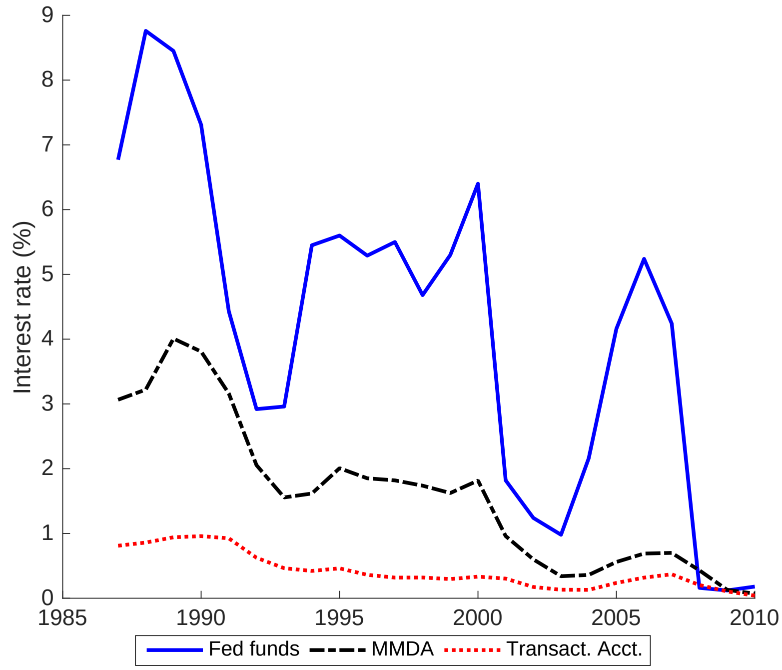


FIGURE A.I
Rates on interest-bearing demand deposit substitutes

## B. EXPLICIT AND IMPLICIT INTEREST ON DEPOSITS

Startz (1979) uses data from Barro and Santomero (1972) to run a regression of implicit interest $i_d$ on a constant and $i_t$. He finds an intercept of 40.2 basis points and a slope coefficient of 0.365. He constructs a series of implicit interest rates (unlike Barro and Santomero's marginal return data, the data in his case are average implicit interest rates), that shows roughly the same time-series relationship with $i_t$: the implicit rate of interest on demand deposits is between 1/3 and 1/2 of the level of $i_t$. As a consequence, the opportunity cost of holding money in the form of a demand deposit is about 2/3 to 1/2 of $i_t$.

Following deregulation in the early 1980s, banks were able to offer interest-bearing transaction accounts that were, to some extent, providing similar services as non-interest-bearing demand deposits. For these accounts, explicit interest replaced implicit interest. As Figure A.I shows, the explicit interest rates on these accounts also moved less than one-for-one with the federal funds rate. The figure shows interest rates on money-market deposit accounts and interest-bearing transaction (checking) accounts based on annual data from Lucas and Nicolini (2015), supplemented with data from Bankrate after the end of Lucas and Nicolini's time series. MMDA rates move about 0.38 percentage points for every percentage point move in the federal funds rate (which is remarkably close to the slope coefficient for implicit interest discussed above), while transaction account rates move about 0.08 percentage points for every percentage point move in the federal funds rate (see, also, Driscoll and Judson (2013) for related evidence).

In summary, the evidence on implicit and explicit interest on transaction accounts suggests that the specification $i_t^d = i_t\delta$ provides a good description of the behavior of these rates.

## C. Currency

The model in the main part of the paper includes demand deposits as the only form of money. In reality, households also hold currency. If currency and demand deposits were perfect substitutes, then one could just re-interpret $D$ in the model as the sum of demand deposits and currency. However, more realistically, currency and demand deposits are imperfect substitutes. For example, for big (and especially for remote) transactions, currency is less convenient than a deposit. Large currency balances are also inconvenient because they require safe storage. However, at very small currency balances, the marginal benefit of an additional unit of currency may be high, as currency may be required for some (smaller) transactions.

Assume that households can convert deposits into currency as they wish (and banks in turn need to ask the central bank to covert reserves into currency that they can pass on to households). The following modification of the liquidity aggregator accommodates these properties of currency balances as follows,

$$Q_t = \left[\kappa_t \left(\frac{G_t}{P_t}\right)^{\theta\rho} + (1-\lambda_t)\left(\frac{D_t}{P_t}\right)^{\rho} + \lambda_t \left(\frac{B_t}{P_t}\right)^{\rho}\right]^{\frac{1}{\rho}}, \tag{9}$$

where $G_t$ denotes the currency balance and $0 < \theta \leq 1$. This specification implies that the marginal benefits from holding currency decline faster with larger balances than the marginal benefits of deposits. Even if T-bills are perfect substitutes for deposits ($\rho = 1$), deposits and T-bills are not perfect substitutes for currency. We now have household first-order conditions with respect to currency, deposits, and T-bill balances:

$$\frac{\alpha\kappa_t\theta(G_t/P_t)^{\theta\rho-1}}{\kappa_t\left(G_t/P_t\right)^{\theta\rho} + (1-\lambda_t)(D_t/P_t)^{\rho} + \lambda_t(B_t/P_t)^{\rho}} = u_c(C_t)\frac{i_t}{1+i_t}, \tag{10}$$

$$\frac{\alpha(1-\lambda_t)(D_t/P_t)^{\rho-1}}{\kappa_t\left(G_t/P_t\right)^{\theta\rho} + (1-\lambda_t)(D_t/P_t)^{\rho} + \lambda_t(B_t/P_t)^{\rho}} = u_c(C_t)\frac{i_t(1-\delta)}{1+i_t}, \tag{11}$$

$$\frac{\alpha\lambda(B_t/P_t)^{\rho-1}}{\kappa_t\left(G_t/P_t\right)^{\theta\rho} + (1-\lambda_t)(D_t/P_t)^{\rho} + \lambda_t(B_t/P_t)^{\rho}} = u_c(C_t)\frac{i_t - i_t^b}{1+i_t}. \tag{12}$$

Equation (11) and (12) pin down the T-bill liquidity premium in the same way as without currency. In particular, in the $\rho = 1$ case, we again obtain (13), exactly identical to the case without currency. Equations (10) and (11) then jointly determine households' optimal currency balance $G_t$ as well as $i_t$.

# D. Data

The original sources report yields in different forms and with different day-count conventions. I convert all yields to effective annual yields with a 365.25-day year.

## *D.A. United States*

*Treasury bill and Treasury note yields.* Data for T-bills and T-notes are obtained from the daily CRSP database. Every day I choose the T-bill closest to 91-day maturity and calculate its yield from the midpoint of the bid and ask quotes provided in the CRSP database. To match T-notes with similar maturity T-bills, I look, each day, for the two-year note with remaining maturity closest to 91 days maturity and two T-bills whose maturity straddle the T-note's maturity. To construct the T-note/T-bill spread I subtract the linear interpolation of the two T-bill yields from the T-note yield as in Amihud and Mendelson (1991). For the sample starting in 1920, the T-bill series includes U.S. Treasury three- to six-month notes and certificates taken from NBER Macro History database (obtained through the FRED database at the Federal Reserve Bank of St. Louis) from 1920 to 1933, 3-month T-bill yields from the FRED database from 1934 to April 1991, and T-bill yields from CRSP, as described above, from May 1991 onwards.

*On-the-run and off-the-run Treasury notes.* To construct the spread between two-year on-the-run and off-the-run notes, I compare the yield of the most recently issued on-the-run note with the yield of the nearest off-the-run note issued one auction earlier. I follow Goldreich, Hanke, and Nath (2005) and use an off-the-run zero-coupon bond yield curve to value the cash flows of the on-the-run note and the nearest off-the-run note. I adjust the off-the-run/on-the-run spread with this synthetic yield difference. This adjustment accounts for the differences in maturity and coupon rates between the two notes. The off-the-run zero-coupon yield curves used in this method are obtained from the Federal Reserve Board, and they are based on the method of Gürkaynak, Sack, and Wright (2007).

*Interbank rates.* Daily GC repo rates are from Bloomberg, available from May 1991 onwards. I use the midpoint between the rates at which dealers pay interest and the rates at which dealers receive interest. CD rates are obtained from the FRED database at the Federal Reserve Bank of St. Louis. The source of these data is the H.15 Release of the Federal Reserve Board. The reported CD rates refer to average of dealer bid rates for large-denomination ($1,000,000 or greater) certificates of deposit. These large denomination CDs are not insured by the FDIC. Daily data for the effective federal funds rate based on the H.15 release is also obtained from the FRED database.

*Other yields.* The Federal Reserve Bank of New York discount rate and the New York three-month bankers' acceptance rate from 1920 until 1940 are from the NBER Macro History Database, obtained through the FRED database. The Banker's acceptance rate from 1941 onwards is from FRED, too.

*Treasury securities supply.* Data on the outstanding U.S. government debt to GDP ratio is from Henning Bohn's website. The data are an updated version of the series used in Bohn (2008). Data on outstanding T-bills is from the Center for Research in Security Prices (CRSP) monthly Treasury files, starting in January 1947. The series reports the outstanding face values of Treasury Bills, Certificates of Indebtedness, Tax Anticipation Bills, and Tax Anticipation Certificates of Indebtedness. Data on quarterly nominal GDP is from the FRED database, linearly interpolated to monthly values.

*VIX and VIX projection.* Daily VIX index data and daily returns of the S&P500 index are from WRDS. For the periods before 1990 when the VIX index is not available, I use a linear projection of VIX on realized volatility. I estimate the projection coefficients by running a linear regression of the monthly average VIX on the average squared daily return of the S&P500 during the same month over the time period 1990 - 2011. I then apply the estimated projection coefficients backwards to calculate fitted values in earlier time periods before 1990. In those periods, I use these fitted values in place of the actual (unavailable) monthly average VIX.

*Federal funds futures.* Daily federal funds futures data from October 1988 to December 2011 are from the Quandl database. For a small number of days, futures price observations are missing. In these cases, I interpolate linearly from the price of futures of neighboring maturities.

### *D.B. United Kingdom*

Data on UK T-bill yields is from Datastream. Before 1996, I use secondary market T-bill yields (LDNTB3M). From 1996 onwards, this series is often stale. For this reason, I use average yields from the weekly three-month T-bill tenders (UKTBTND) from 1996 until 2011. Monthly averages of CD rates and of the SONIA overnight interbank rate are from the Bank of England.

### *D.C. Canada*

Data on three-month T-bill yields are from Global Financial Data. The data comprises daily secondary market yields from 1990 and auction yields prior to 1990. Yields on three-month prime commercial paper and Canada dollar overnight LIBOR are also from Global Financial Data. The data is weekly until 1990 and daily subsequently. When the CORRA general collateral overnight repo rate becomes available on Datastream from December 1997 onwards, I use CORRA as the short-term interest rate instead of LIBOR.

## E. Taxes: Federal Home Loan Bank Discount Note Spread

As Figure A.II shows, the FHLB note/T-bill spread is quantitatively similar to the repo/T-bill spread. The correlation between the two series is 0.91. Since FHLB discount notes have the same state-tax treatment as T-bills, the behavior of the FHLB note/T-bill spread cannot be explained by differences in tax treatment. The close similarity between the FHLB note/T-bill spread and the repo/T-bill spread then suggests that the repo/T-bill spread cannot be explained by differential tax treatment either. A consistent explanation of both spreads is that both reflect the superior liquidity of T-bills.

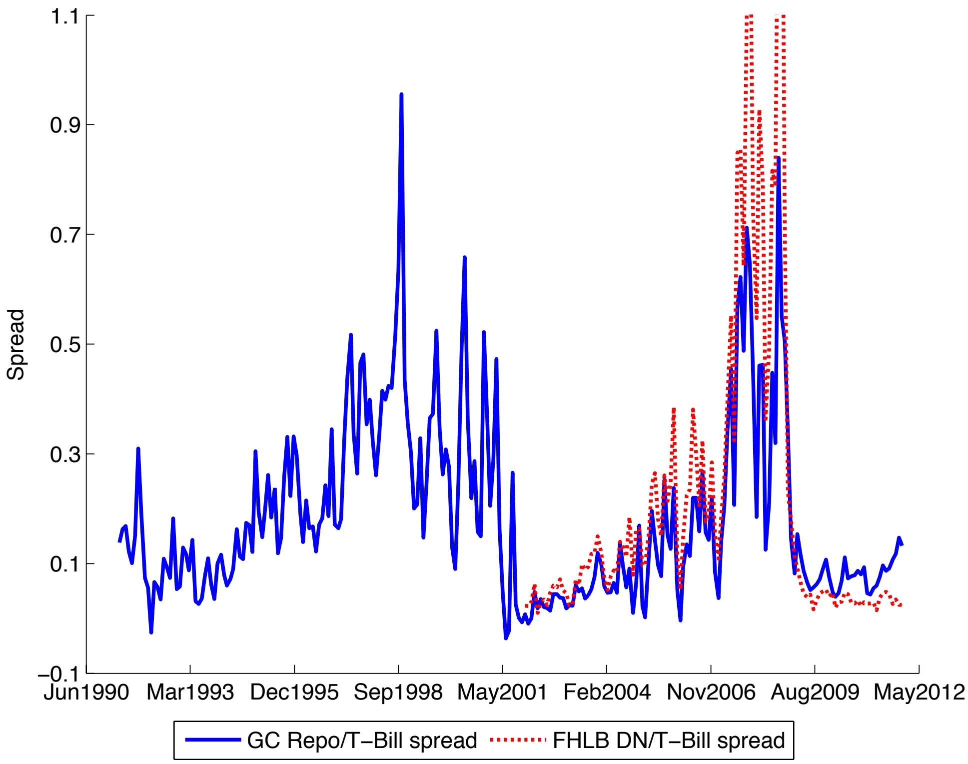


FIGURE A.II
Spread between Repo/T-bill spread compared with T-bill/FHLB discount note spread

## F. GMM estimation of $\rho$

GMM estimation of $\rho$ is based on the specification estimated in column (5) of Table III, but now exploiting parameter restrictions across the regression coefficients. This specification in this column corresponds to (18), with the $\hat{Y}$ term left in the residual,

$$i_t - i_t^b - (\bar{\imath} - \bar{\imath}^b) = \beta_i \rho (i_t - \bar{\imath}) + \beta_\lambda (\lambda_t - \bar{\lambda}) - \beta_b (1 - \rho)(\log b_t - \log \bar{b}) + \nu_t, \tag{13}$$

where, following (8),

$$\beta_i = \frac{\bar{\imath} - \bar{\imath}^b}{(1 + \bar{\imath}^b)\bar{\imath}}, \qquad \beta_b = \frac{\bar{\imath} - \bar{\imath}^b}{(1 + \bar{\imath}^b)}. \tag{14}$$

As before, $\lambda_t$ is not directly observed but proxied for by its projection on the VIX index, and so the empirical estimate of $\beta_\lambda$ in this specification does not directly correspond to $\beta_\lambda$ in the model. However, $\rho$ can be inferred from the coefficients on $i_t$ and $\log b_t$ in (13). More

TABLE A.I

GMM ESTIMATES OF $\rho$

| | $\rho$ | $\bar{\imath} \times 100$ | $(\bar{\imath} - \bar{\imath}^b) \times 100$ | $\log \bar{b}$ | $\bar{\lambda} \times 100$ | $\beta_\lambda \times 100$ | $J$-statistic |
|---|---|---|---|---|---|---|---|
| Panel A: 1947 - 2011, BAcc/T-Bill spread | | | | | | | |
| w/o VIX | 1.29 | 5.14 | 0.48 | -2.47 | | | 0.12 |
| | (0.11) | (0.98) | (0.11) | (0.04) | | | [0.73] |
| with VIX | 1.28 | 5.14 | 0.48 | -2.47 | 18.31 | 1.46 | 0.12 |
| | (0.11) | (0.97) | (0.11) | (0.04) | (0.84) | (0.48) | [0.73] |
| Panel B: 1976 - 2011, CD/T-Bill spread | | | | | | | |
| w/o VIX | 0.81 | 6.06 | 0.68 | -2.51 | | | 0.04 |
| | (0.20) | (0.96) | (0.12) | (0.04) | | | [0.85] |
| with VIX | 0.93 | 6.03 | 0.68 | -2.50 | 19.63 | 4.22 | 0.03 |
| | (0.17) | (0.85) | (0.10) | (0.04) | (1.05) | (1.13) | [0.87] |

*Notes:* Second-stage GMM estimates. Standard errors based on a Newey-West spectral density matrix (60 lags) are shown in parentheses; $p$-values for the $\chi^2_1$ statistic of the overidentification test are shown in brackets.

precisely, I estimate $\bar{\imath}$, $\bar{\imath}^b$, $\log \bar{b}$, $\bar{\lambda}$, $\rho$, $\beta_\lambda$ from the following seven moment conditions

$$
\begin{aligned}
E[i_t - \bar{\imath}] &= 0, \\
E[i_t - i_t^b - (\bar{\imath} - \bar{\imath}^b)] &= 0, \\
E[\log b_t - \log \bar{b}] &= 0, \\
E[(\lambda_t - \bar{\lambda})] &= 0, \\
E[\nu x_t] &= 0,
\end{aligned} \tag{15}
$$

where $x_t = (i_t - \bar{\imath}, \lambda_t - \bar{\lambda}, \log b_t - \log \bar{b})'$. With six parameters to be estimated, there is one overidentifying restriction. I estimate this system with two-stage GMM, with identity weighting matrix in the first stage and the efficient weighting matrix in the second stage. Standard errors are based on a Newey-West spectral density matrix with 60 lags. Unlike in Table III, interest rates here are not scaled to basis points or percentage points. Thus, for example, $100 \times \beta_\lambda$ here corresponds to the coefficient on VIX reported in Table III.

Table A.I presents two specifications: one with the VIX index included as proxy for $\lambda_t$, the other one with the $\lambda_t$ term omitted. As the results in Panel A show, in the long sample back to 1947 with the banker's acceptance/T-bill spread as measure of the liquidity premium, inclusion of the VIX has little effect on the estimate of $\rho$. Both specifications yield a value of $\rho$ close to 1.30. This finding is consistent with a very high elasticity of substitution between money and T-bills. Strictly speaking, a value of $\rho > 1$ is not economically sensible, but in interpreting these results one must also keep in mind that they are based on a model that was derived with approximations and that there is a substantial standard error as well. Measurement error in the liquidity premium (e.g., due to credit risk priced into banker's acceptance rates) that happens to be correlated with the federal funds rate or T-bill supply could also distort the estimates to some extent. As Panel B shows, the point estimates of $\rho$ are in the economically sensible range in the shorter 1976 - 2011 sample with the CD/T-bill

TABLE A.II

First-stage regressions

| | $\Delta$ Fed funds rate (1) | $\Delta \log(\text{T-Bill/GDP})_t$ (2) | $\Delta \log(\text{T-Bill/GDP})_{t-1}$ (3) |
|---|---|---|---|
| Intercept | -0.09 | -0.02 | 0.04 |
| | (0.02) | (0.01) | (0.01) |
| Jan | 0.06 | -0.00 | -0.06 |
| | (0.03) | (0.01) | (0.01) |
| Feb | 0.05 | 0.06 | -0.06 |
| | (0.06) | (0.01) | (0.01) |
| Mar | 0.11 | 0.04 | -0.00 |
| | (0.04) | (0.01) | (0.01) |
| Apr | 0.05 | -0.05 | -0.02 |
| | (0.03) | (0.01) | (0.01) |
| May | 0.10 | 0.02 | -0.11 |
| | (0.03) | (0.01) | (0.01) |
| Jun | 0.10 | -0.00 | -0.04 |
| | (0.03) | (0.01) | (0.01) |
| Jul | 0.05 | 0.03 | -0.06 |
| | (0.04) | (0.01) | (0.01) |
| Aug | 0.06 | 0.05 | -0.03 |
| | (0.03) | (0.01) | (0.01) |
| Sep | 0.05 | -0.00 | -0.01 |
| | (0.04) | (0.01) | (0.01) |
| Oct | -0.05 | 0.03 | -0.06 |
| | (0.05) | (0.02) | (0.01) |
| Nov | 0.07 | 0.06 | -0.03 |
| | (0.04) | (0.01) | (0.02) |
| $f_{t-2}^{t} - f_{t-2}^{t-1}$ | 0.84 | -0.03 | -0.03 |
| | (0.08) | (0.01) | (0.02) |

*Notes:* Newey-West standard errors (6 lags) are shown in parentheses.

spread as measure of the liquidity premium. Here, the point estimates of $\rho$ are 0.81 and 0.93, respectively, and $\rho = 1$ is within less than one standard error of these two estimates. Overall, these results demonstrate that the behavior of the T-bill liquidity premium vis-a-vis interest rates and T-bill supply is not only qualitatively but also quantitatively consistent with a high elasticity of substitution.

## G. First-stage regressions

Table A.II presents the coefficient estimates from the first-stage regressions corresponding to columns (5) to (8) in Table IV. For the change in the federal funds rate, the time $t-2$ futures price difference $f_{t-2}^{t} - f_{t-2}^{t-1}$ is a highly significant predictor, while the seasonal dummies are not important. In contrast, for the T-bill supply variable, the coefficients of many of the seasonal dummies are big in magnitude (suggesting seasonal supply effects of several percentage points)

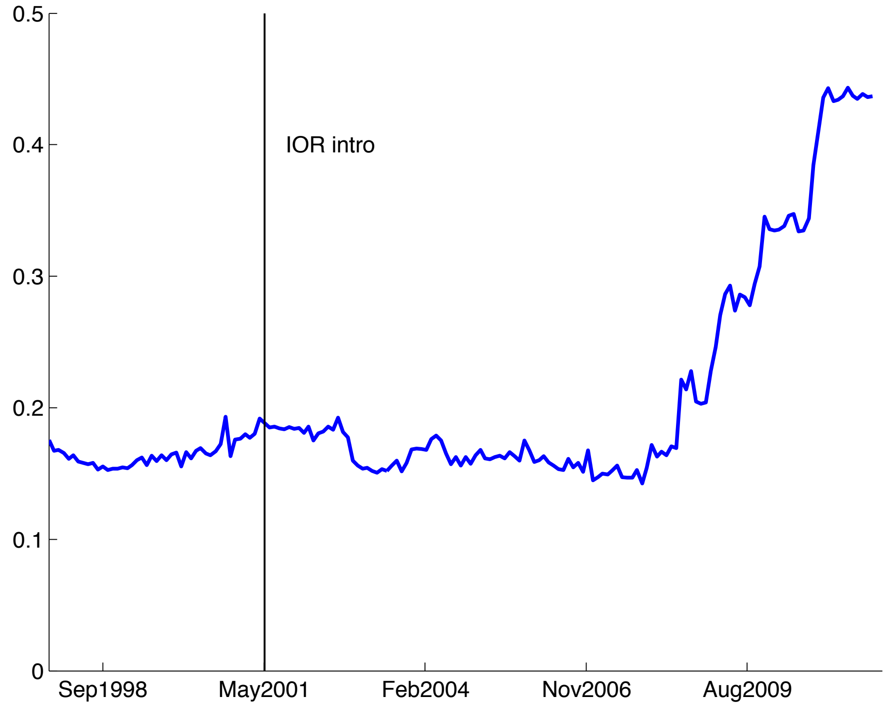


Figure A.III
UK non-interest bearing demand deposits as proportion of GDP

and statistically significant, consistent with Greenwood, Hanson, and Stein (2015).

## H. Deposit balances and interest rates in the UK around the introduction of IOR

Figure A.III plots the quantity of non-interest bearing demand deposits in the UK, expressed as a proportion of GDP, around the time of the introduction of IOR in 2001. The data are from the Bank of England (non-interest bearing sight deposits in the Bank of England's terminology). Before the financial crisis, the share of non-interest bearing demand deposits is quite stable between 15 and 20 percent of GDP. There is no apparent break or other substantial change in the series with the introduction of IOR in 2001.

Figure A.IV shows UK deposit rates based on data from the Bank of England. The solid line shows the average rate on current accounts (i.e., checking accounts). As the figure shows, the average interest rate for this type of account is close to zero, it does not vary with the level of the short-term interest rate (which is shown in the figure as the dotted line), and it stayed close to zero following the introduction of IOR in 2001. There is a slight up-tick in the rate a few months after the IOR introduction, but it is not clear whether this rise was connected to the change in the Bank of England's reserve remuneration policy. In any case,

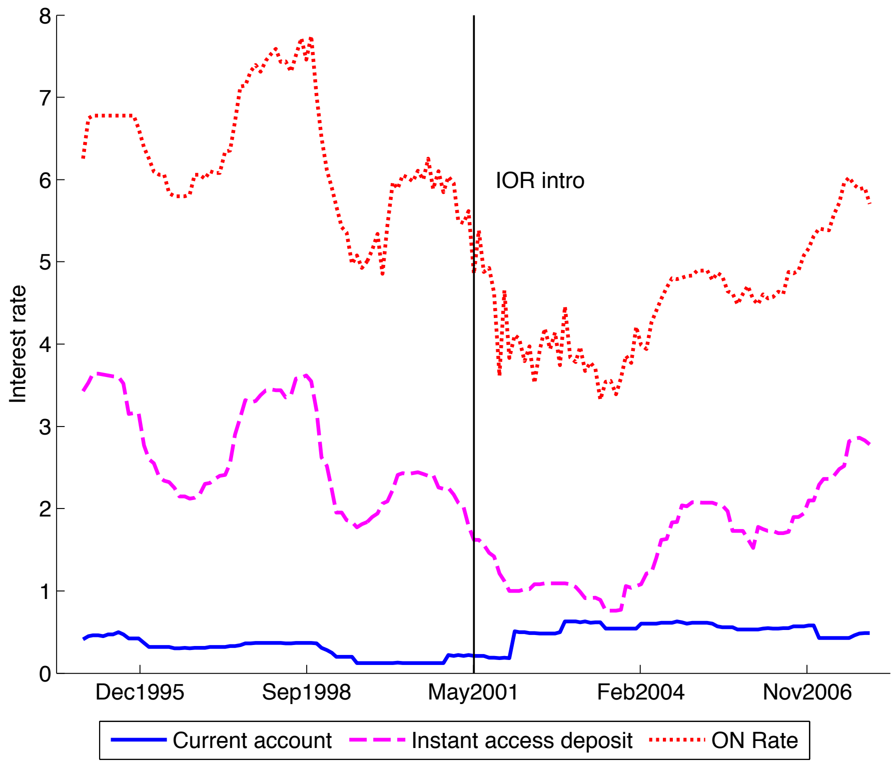


FIGURE A.IV
UK deposit interest rates

even with this slight rise, the average rate remained below one percent.

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