The Arbitrageur Within: Global Banks and the Currency Risk Premium*

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Abstract

Using novel data on UK dealer banks' US dollar inflows and outflows, both on- and off-balance-sheet, we ask whether global banks act as currency arbitrageurs—bearing risk to earn the currency risk premium. USD gross flows are dominated by FX derivatives, which average $35 trillion over 2019-2026 and are largely offsetting. In net terms, these banks mostly supply dollars via FX derivatives and loans, and fund themselves mainly with short-term deposits, alongside repo. Their net USD position across all instruments is far smaller, averaging only $15 billion and typically between ±$100 billion. Our main result is that increases in banks' net-long USD position through FX derivatives predict increases in excess USD currency returns, as they would for an arbitrageur. However, increases in net-long USD positions in other instruments predict decreases in returns. These two sets of positions are not a perfect hedge: when net FX derivatives exposure rise other instruments offset only 46 cents of each dollar. Overall over time, while UK global banks do not act as currency arbitrageurs on-average across all their positions, their FX derivatives desks do.

JEL Codes: F31, F32, F41, G15, G21.

Key Words: Exchange rates; FX derivatives; International banking.

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1 Introduction

At the center of modern international macroeconomic models sits a global arbitrageur, an intermediary that absorbs the net currency flows of the rest of the financial system and acts as the reservoir for foreign exchange risk (Gabaix and Maggiori, 2015; Itskhoki and Mukhin, 2021). In return, the arbitrageur demands compensation for bearing that risk, in the form of currency excess returns. A central question is: who is this arbitrageur? Its identity tells us whose constraints and risk-bearing capacity govern how exchange rates respond to flows, and therefore which elasticity to calibrate these models to match. Its identity also matters for financial stability: if a particular set of institutions warehouses the world's currency risk, regulators should be monitoring their exposures.

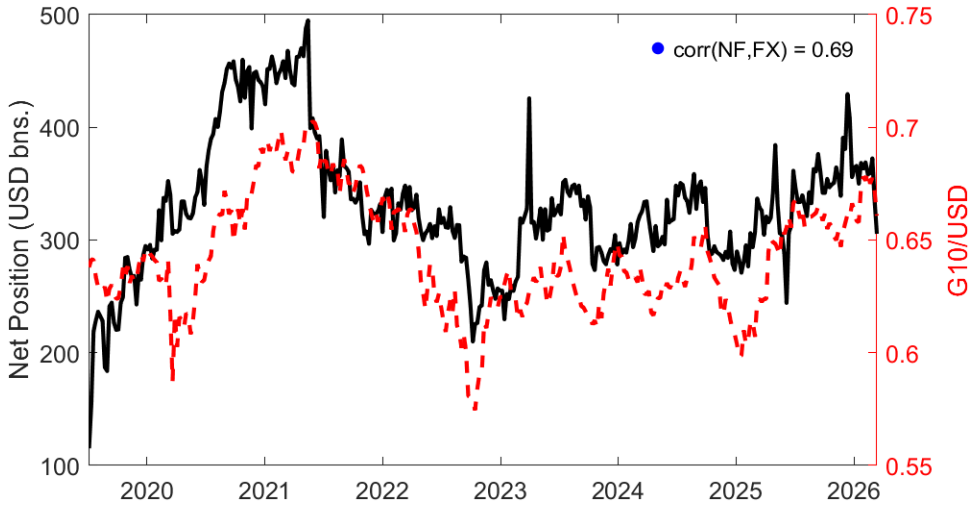
In principle, many institutions could fill this role, but none are better placed than global banks, which take currency positions through cross-border lending and vast networks of branches and subsidiaries around the globe. Yet there is little direct evidence on whether global banks actually behave as the arbitrageur of theory.

In this paper, we use unique supervisory data to study the US dollar inflows and outflows of UK dealer banks, covering both their on- and off-balance-sheet activity across their entire global operations. We use these comprehensive positions to investigate whether global banks are risk takers in currency markets—warehousing risk and earning excess returns—as an arbitrageur would. Since London is the largest FX trading hub, these UK global dealer banks are major players in global currency markets, as we show below.

We begin by documenting new stylized facts about the US dollar positions of UK global dealer banks. Our first fact is that their gross USD exposures are dominated by FX derivatives—including FX swaps, forwards, futures and cross-currency swaps—with average gross positions (inflows + outflows) of $35 trillion over our 2019-2026 sample; gross inflows and outflows are largely offsetting. This is important for two reasons. First, UK global dealer banks are major players in global currency markets: of the $80 trillion in outstanding US dollar obligations from FX derivatives in 2022, according to the BIS triennial survey (see Borio et al., 2022), around 45% sat with a handful of large UK banks. Second, the large volume of offsetting gross USD positions points to these banks earning significant income from bid-ask spreads on their matched FX books (Du et al., 2025). This is a classic signature of a market maker, i.e., a toll taker that intermediates between parties with different needs, motives and constraints across geographies, without necessarily taking currency risk.

Net FX derivatives exposures are two orders of magnitude smaller than gross positions. Over our sample, UK dealer banks hold a net long USD position in FX derivatives averaging

Figure 1: UK Dealer Banks' Net USD FX Derivatives Position and the US Dollar



Notes: Net USD FX derivatives position of UK dealer banks, in billions of USD, plotted against the average price of nine G10 currencies in USD (increases reflect USD depreciations), weekly from Jul/2019 to Mar/2026. Details on calculations in Section 2.

about $350 billion, through which they can on-net supply dollar liquidity to other market participants (see Hacioglu Hoke et al., 2026). UK banks' other main instrument for dollar lending is market loans, with a stock averaging about $600 billion over our sample. On the funding side, their main source of dollars is unsecured deposits, averaging about $900 billion, along with secured borrowing, including repo, at around $75 billion. A key feature of these net exposures is maturity mismatch. Banks borrow short—with almost all of their net deposit and repo funding maturing within one week—and lend long—via FX derivatives, with residual maturities typically between one week and one year, and loans with maturities often beyond one year. The classic view that banks perform maturity transformation and bear liquidity risk therefore extends beyond deposits and loans to their other dollar instruments. Aggregating across all these exposures, UK dealer banks do carry a net US dollar position, but it is small, averaging only $15 billion, and usually lying between −$100 billion and +$100 billion. Banks' net USD exposures are therefore typically three orders of magnitude less than their gross ones.

While banks' large gross exposures and maturity mismatch point to market-making and maturity-transformation business models, banks may still act as currency arbitrageurs with respect to their residual net US dollar exposures. We first split banks' net USD position into two components: one from FX derivatives, and one from all other instruments. Figure 1 plots the aggregate UK dealer bank sectors' net USD FX derivatives exposure (in black) alongside the average USD exchange rate against G10 currencies (in red, dashed) over our sample. The two are strongly positively correlated in levels ($\rho = 0.69$), with UK dealer banks going more net-long the USD when the USD is weaker. This is consistent with the behavior of the currency arbitrageur

in macro models, absorbing clients' dollar selling pressure by buying dollars cheap, expecting to profit from its subsequent appreciation. Foreshadowing results to come, the correlation is nearly 50% lower ($\rho = 0.36$) when using banks' overall net USD exposure in lieu of its exposure coming from FX derivatives alone. Importantly, however, changes in banks' FX derivatives positions are not fully offset by changes elsewhere in their portfolios: each additional dollar of net long USD exposure through FX derivatives is accompanied by a reduction of only 46 cents in net USD exposure via other instruments, such that banks' overall net USD position rises, i.e., they take 54 cents of dollar currency mismatch.[1]

To investigate whether banks act as arbitrageurs formally, we use a simple model of currency intermediation as a guide and test whether increases in banks' net long US dollar position predict increases in future excess returns on the dollar, from which banks would profit. We find that positions built through FX derivatives behave as the arbitrageur's would: larger net long positions predict higher excess dollar returns. Quantitatively, a $1 billion increase in banks' net-long USD FX derivatives position predicts a 1.3 basis points larger USD excess return over the subsequent week. The rest of banks' portfolio does the opposite: when banks go longer the dollar via other instruments, excess dollar returns are predicted to be lower by a similar amount. Overall over time, increases in banks' net long dollar position across their entire portfolio do not predict higher excess dollar returns.

Our results suggest that global banks contain an arbitrageur but, on a consolidated basis, do not behave as one. Their FX derivatives desks take on currency risk and earn excess returns as compensation. Banks instead pay the exchange-rate risk premium when exposures originate elsewhere in their portfolios. Importantly, this does not reflect a simple hedge: when banks change their net USD exposure taken via FX derivatives, adjustments elsewhere in banks' portfolio systematically offset only 46% of those changes. Those adjustments also generate their own unhedged dollar exposures, which predict excess returns negatively. In time periods where the two sets of positions do hedge one another, this resembles a covered interest parity trade built from risky assets, as in Moskowitz et al. (2026). When they do not, whether banks earn excess currency returns depends on which part of the bank the USD flows originate from. On average across all instruments and time, however, banks' USD positions are uninformative about currency excess returns.

These findings suggest that different parts of dealer banks have different motives and constraints when trading currency. In Gabaix and Maggiori (2015), the financier's risk-bearing capacity is limited by an agency friction. That friction resembles the risk limits banks impose

[1] Banks could also fund part of their USD FX derivative lending by running down their USD reserves and other liquid asset holdings, as shown in Correa et al. (2020), which we will investigate going forward.

on their FX dealing desks (Barbiero et al., 2024). Beyond making markets, these desks also appear to share the objective of the model's financier: taking net currency positions to earn excess returns. The rest of the banks' operations instead generate currency-inelastic flows, akin to 'noise traders'. These balance-sheet operations seek to maximize the total return across their lending and funding, which can earn credit, term and liquidity premia. One interpretation of our results is that these balance-sheet operations are willing to forgo the currency premium—paying it to other arbitrageurs in the market—in order to earn these potentially more valuable premia, which are their comparative advantage. The bank's Treasury, in turn, may be content with this arrangement, since the bank as a whole neither earns nor loses the currency premium on average. Overall, our results do not support the view that global dealer banks as a whole are the global currency arbitrageurs at the center of the international system, although they do suggest that their FX dealer desks are one of the entities that price currency flows in the market.

Related literature. Our paper relates to three strands of literature.

First, we contribute to the literature on international macro models in which a global arbitrageur's limited risk-bearing capacity shapes exchange rate dynamics (Gabaix and Maggiori, 2015; Itskhoki and Mukhin, 2021, 2025; Gourinchas et al., 2025; Greenwood et al., 2023; Kekre and Lenel, 2024a,b, 2025; Barbiero et al., 2024). Recent empirical work brings these models to position data. Dao et al. (2025) show that changes in dealers' net positions in CFTC currency futures move closely with currency premia. Their data, however, combine the positions bank and non-bank dealers, cover only futures, and do not capture dealers' positions elsewhere on their balance sheets. By combining information on global banks' entire on- and off-balance-sheet USD positions, we identify which components of their currency exposures earn currency premia and which pay them. Barbiero et al. (2024) use supervisory data on desk-level risk limits at global banks' currency desks to show that tighter limits lead dealers to widen bid-ask spreads and cut their net currency exposures, with sizeable effects on exchange rates. Hacioglu Hoke et al. (2026) show that while dealers hold the largest US dollar positions in FX derivatives, it is hedge funds' smaller positions that move most closely with exchange rates and with classic investment strategies that earn excess returns. Overall, we contribute to this literature by showing that global banks' FX derivatives books behave like the arbitrageur of theory, while the rest of their balance sheets behave like the inelastic currency flows that the arbitrageur absorbs.

Second, we relate to work linking currency demand and flows to currency returns, from the order-flow literature to studies of speculative positioning, hedging demand and banks' lending flows (Evans and Lyons, 2002; Froot and Ramadorai, 2005; Brunnermeier et al., 2008;

Della Corte et al., 2016; Menkhoff et al., 2016; Ostry, 2023; Camanho et al., 2022; Liao and Zhang, 2025; Becker et al., 2023). Consistent with this literature, we find that the balance-sheet component of global banks' dollar positions behaves like inelastic currency demand, which trades against the elastic intermediaries in the market, consistent with evidence in Bippus et al. (2026). Our contribution is to separate the elastic and inelastic components of currency demand within the same set of global dealer banks, showing that flows absorbed by global banks' dealing desks and initiated by their balance-sheet operations have opposite implications for currency returns.

Third, we relate to work on global banks' role in intermediating dollar funding and on deviations from covered interest parity (Du et al., 2018; Avdjiev et al., 2019; Rime et al., 2022). Moskowitz et al. (2026) use US supervisory data to show that banks rarely hedge their synthetic dollar lending in FX swap markets with maturity-matched safe assets, such that the covered interest parity trades they undertake are built from risky assets, exposing them to interest rate and credit risk. Consistent with this, the dollar positions that offset banks' FX derivatives books in our data are held at mismatched maturities and through risky instruments such as loans and bonds. Correa et al. (2020) use the US analog of our data to show how large US banks supply dollars via repo and FX swaps during times of dollar funding stress, which they fund by drawing down their dollar reserves from the Fed. Our findings compliment theirs, in that we document that UK banks supply dollars via FX derivatives, in part, by taking on currency mismatch, in order to earn currency excess returns.

2 Data and Definitions

2.1 Global Bank FX Liquidity

Our analysis draws on the PRA110 cash-flow mismatch return, a liquidity return collected by the Prudential Regulation Authority (PRA) at the Bank of England from banks regulated in the UK [2]. PRA110 records the contractual cash inflows and outflows that a bank is scheduled to receive or pay under all contracts in force at the reporting date, covering both on- and off-balance-sheet positions. These flows are reported by instrument, by currency and by residual maturity, from overnight to beyond five years. The return is therefore forward-looking: rather than a snapshot of assets and liabilities, it maps each bank's existing contracts into the future payments and receipts they generate. The reported amounts are notional contractual flows, not market values or measures of profit and loss (Prudential Regulation Authority, 2019a,b).

[2] Branches of overseas banks which operate in the UK do not report PRA110 data

The coverage of PRA110 differs by where a bank is headquartered. For UK-headquartered banks, we observe their global operations at the level of their liquidity consolidated group, including the activity of their branches and subsidiaries around the world. For non-UK-headquartered banks, we do observe only their operations inside the UK or operations (sub)consolidated under the UK subsidiary. Because global banks conduct their currency business through networks of branches and subsidiaries spread across many jurisdictions, a view of their global operations is essential for measuring the currency positions they actually carry. We therefore focus on UK-headquartered banks. Among these, we focus on the largest dealer banks, which are the main candidates to act as the global currency arbitrageur. Our sample covers these banks' US dollar positions at a weekly frequency from July 2019 to March 2026.

Measuring net USD positions. Let $Q_{i,t}^{I,k}(m)$ and $Q_{i,t}^{O,k}(m)$ denote the contractual US dollar inflows and outflows, respectively, that bank i reports at date t for instrument k, due at residual maturity m. We define bank i's net USD position in instrument k as its total scheduled dollar inflows less its total scheduled dollar outflows, accumulated across all future maturities:

$$Q_{i,t}^{k} = \sum_{m} \left[Q_{i,t}^{I,k}(m) - Q_{i,t}^{O,k}(m) \right]. \tag{1}$$

A positive value means the bank is contractually due to receive more dollars than it must pay through instrument k, that is, it is net long the dollar through that instrument. Bank i's overall net USD position aggregates across instruments:

$$Q_{i,t} = \sum_{k} Q_{i,t}^{k}. \tag{2}$$

Our instrument categories are FX derivatives—which can include FX swaps, forwards, futures, cross-currency swaps and yet unsettled FX spot agreements—loans, deposits, safe-asset secured lending and borrowing (including repo), other secured lending and borrowing, bonds, other derivatives, and 'all other' items. In our main analysis, we split each bank's overall position into its FX derivatives component, $Q_{i,t}^{FXder}$, and the sum of all other instruments, $Q_{i,t}^{Oth} = Q_{i,t} - Q_{i,t}^{FXder}$.

We also study positions by residual maturity. Grouping maturities into buckets $b \in \{0\text{–}1\text{W}, 1\text{W}\text{–}1\text{M}, 1\text{M}\text{–}3\text{M}, 3\text{M}\text{–}1\text{Y}, > 1\text{Y}\}$, bank i's net USD position in instrument k and maturity bucket b is

$$Q_{i,t}^{k,b} = \sum_{m \in b} \left[Q_{i,t}^{I,k}(m) - Q_{i,t}^{O,k}(m) \right], \tag{3}$$

and its overall net USD position in maturity bucket b, across all instruments, is

$$Q_{i,t}^{b} = \sum_{k} Q_{i,t}^{k,b}. \tag{4}$$

By construction, summing $Q_{i,t}^{b}$ across maturity buckets recovers the overall position $Q_{i,t}$.

Because our interest is in how banks' dollar positions relate to the pricing of the dollar in aggregate, we sum these positions across the largest UK dealer banks to form sector-level measures, $Q_t = \sum_i Q_{i,t}$, and likewise for each instrument and maturity bucket.

2.2 Foreign Exchange

Exchange Rates. We collect spot and one-week forward exchange rates via-à-vis the US dollar (USD) from Refinitiv/Datastream (LSEG). The exchange rate is quoted as units of USD per unit of foreign currency (FCU), USD/FCU, such that an increase in the spot or forward rate indicates an appreciation (depreciation) of the FCU (USD).

The sample comprises nine currency pairs across G10 countries, including: Australia (AUD), Canada (CAD), euro area (EUR), Japan (JPY), New Zealand (NZD), Norway (NOK), Sweden (SEK), Switzerland (CHF), and the United Kingdom (GBP).

FX Excess Returns. Let spot and forward exchange rates at time t be defined as S_t and F_t. The excess return on selling a foreign currency in the forward market at time t (long US dollars) and buying it in the spot market one period later, at time $t+1$, is given by:

$$RX_{i,t+1} = \frac{F_{i,t} - S_{i,t+1}}{S_{i,t}} = \underbrace{\frac{F_{i,t} - S_{i,t}}{S_{i,t}}}_{\text{Carry}} - \underbrace{\frac{S_{i,t+1} - S_{i,t}}{S_{i,t}}}_{\text{Spot Ret.}} \tag{5}$$

The carry component is determined ex ante and captures the price of supplying US dollars against foreign currency through the forward points. The spot component is realized ex post and captures the return on the associated long-dollar position arising from subsequent exchange-rate movements. Our main results come from excess returns using one-week forwards held to maturity.[3]

Finally, as in Lustig et al. (2011), we construct the dollar factor as an equally-weighted

[3] See Table A.1 for the LSEG spot and forward tickers.

portfolio taking a long position in the US dollar against the nine G10 foreign currencies:

$$DOL_{t+1} = \frac{1}{N} \sum_{i=1}^{N} RX_{i,t+1}. \tag{6}$$

This will represent our main outcome variable of interest, although we will also separately study dollar excess returns vis-à-vis the GBP and EUR. Table A.3 provides summary statistics for these excess currency returns.

3 UK Global Banks' US Dollar Positions

This section documents the US dollar positions of the largest UK dealer banks. We first describe their gross and net positions - both on and off-balance sheet - broken down by instrument and maturity, and then discuss how these instrument- and maturity-level net positions co-move with each other and with the value of the dollar.

We begin with the banks' gross positions. Figure 2 plots their gross scheduled US dollar inflows (above zero) and outflows (below zero), by instrument. Gross positions are very large, averaging around $35 trillion over our sample, split roughly evenly between inflows and outflows. They peaked at close to $20 trillion on each side in 2020, fell to a trough of around $15 trillion on each side between mid-2020 and 2023, and have since risen steadily, returning to around $20 trillion on each side in 2025. FX derivatives account for the overwhelming majority of these gross positions. Loans, deposits, secured lending and borrowing, and all other instruments together make up only a thin slice of the total.

These magnitudes place UK dealer banks at the center of global currency markets. The BIS estimates that outstanding US dollar payment obligations from FX swaps, forwards and cross-currency swaps amounted to roughly $80 trillion in 2022 (Borio et al., 2022). UK dealer banks are counterparty to contracts accounting for around 45% of this amount. At the same time, gross dollar inflows and outflows through FX derivatives largely offset one another. This suggests that the banks earn significant income from bid-ask spreads on the matched portion of their FX derivatives books, the classic signature of a market maker.

Figure 3 splits the same gross positions by residual maturity. The shortest bucket, maturing within one week, is the largest, accounting for roughly a third of gross positions on each side. The remainder is spread fairly evenly across the one-week-to-one-month, one-to-three-month, three-month-to-one-year and beyond-one-year buckets. At this scale, gross inflows and outflows appear closely matched within each maturity bucket. But because gross positions are so large, even small differences between them add up to sizeable net positions, which, as we

show below, reveal a pronounced maturity mismatch.

Netting inflows against outflows reveals a very different picture. Figure 4 plots the banks' net US dollar positions by instrument, in billions of US dollars. The $35 trillion in gross FX derivatives positions collapses by two orders of magnitude to a net long position averaging about $330 billion, ranging between roughly $200 billion and $500 billion over the sample. Through this position, which is likely to be largely dominated by FX swaps, UK dealer banks supply dollars on net to other market participants. The banks' other main channel for supplying dollars is loans, with a net long position that has grown from around $500 billion in 2019 to more than $700 billion by 2026. On the funding side, the banks' main source of dollars is unsecured deposits, a net short position that has grown from around $600 billion to more than $1.1 trillion over the sample. They also borrow dollars through secured borrowing backed by safe assets, including repo, with a net short position averaging around $75 billion. The remaining instruments, including other secured lending, bonds and other derivatives, carry smaller net positions (see Table A.2 for a full set of summary stats).

Aggregating across all instruments, the banks carry a small net US dollar position, shown by the black line in Figure 4, as well as in Figure 7. It averages only $15 billion, with a standard deviation of $60 billion, and mostly lies between −$100 billion and +$100 billion. This is typically three orders of magnitude smaller than the banks' gross positions. The net position is nonetheless persistent and varies meaningfully over time: the banks were net long the dollar through 2020, net short over 2022 and early 2023, and mostly net long since 2024.

Splitting these net positions by residual maturity reveals a pronounced maturity mismatch. Figure 5 splits the banks' overall net position by maturity. The banks are heavily net short dollars at the shortest maturities, with net positions maturing within one week of between −$500 billion and −$900 billion, and net long at all longer maturities, most of all beyond one year. In other words, the banks borrow dollars short and lend them long.

The instrument-level breakdown show in Figure 6 shows where this mismatch comes from. On the funding side, almost all of the banks' net deposit funding matures within one week (Figure 6, panel b), as does almost all of their net borrowing secured by safe assets (panel d). On the (net) lending side, net FX derivatives positions are concentrated at maturities between one week and one year (panel c), while a substantial share of net loans, around 40–45%, matures beyond one year (panel a). The classic view that banks perform maturity transformation and bear liquidity risk therefore extends beyond loans and deposits to the banks' other dollar instruments, in particular with respect to FX derivatives and safe-asset secured borrowing.[4]

[4]Bonds show a similar pattern, with net long positions beyond one year that have grown markedly since 2023, partly offset by net short positions at three months to one year (panel f).

We next ask whether changes in the banks' position in one instrument are associated with changes in their overall net dollar exposure, or are instead offset elsewhere in their portfolios. To do so, we regress the weekly change in the banks' net dollar position in each instrument k on the weekly change in their net position in FX derivatives, loans or deposits, in turn:

$$\Delta Q_t^k = a^{k,j} + b^{k,j} \Delta Q_t^j + u_t^{k,j}, \qquad j \in \{FXder, Loans, Deps\}. \tag{7}$$

Table 1 reports the coefficients $b^{k,j}$. Because the banks' overall net position is the sum of their instrument positions, $Q_t = \sum_k Q_t^k$, the sum of the coefficients across instruments, $\sum_k b^{k,j}$, reported in the final row, equals the coefficient from regressing the change in the overall position, ΔQ_t, on ΔQ_t^j. It measures the change in the banks' overall net dollar position associated with a \$1 change in their position in instrument j.

Changes in FX derivatives positions induce substantial net exposure. A \$1 increase in the banks' net long dollar position through FX derivatives is accompanied by a \$0.24 fall in net loans and smaller falls in other instruments, such that other instruments offset only 46 cents in total. The banks' overall net dollar position therefore rises by 54 cents. Changes in loan positions induce less net exposure: they are offset to a greater extent, by both FX derivatives and deposits, leaving 23 cents of each dollar in the overall position. Changes in deposit positions induce essentially none: a \$1 fall in net deposit funding is accompanied by a \$0.95 fall in net loans, leaving the overall position almost unchanged. The banks' deposit and loan franchise therefore acts largely as a pass-through, while their FX derivatives book is a main source of variation in their overall net dollar exposure.

We next ask the same question across maturities: which changes in the banks' net positions translate into changes in their overall net dollar exposure? We regress the weekly change in the banks' overall net dollar position maturing in each bucket m, summed across instruments, on the weekly change in the position maturing in each bucket n, in turn:

$$\Delta Q_t^m = a^{m,n} + b^{m,n} \Delta Q_t^n + u_t^{m,n}, \qquad m, n \in \{0\text{–}1\text{W}, 1\text{W}\text{–}1\text{M}, 1\text{M}\text{–}3\text{M}, 3\text{M}\text{–}1\text{Y}, > 1\text{Y}\}. \tag{8}$$

Table 2 reports the coefficients $b^{m,n}$. As before, the sum $\sum_m b^{m,n}$, reported in the final row, equals the coefficient from regressing ΔQ_t on ΔQ_t^n, and so measures how much of a \$1 change in the position maturing in bucket n passes through to the banks' overall net position.

Changes at the shortest and longest maturities are the least offset elsewhere, and so pass through most to the banks' overall net position: 24 cents of each dollar change in the position maturing within one week, and 45 cents of each dollar change in the position maturing beyond

one year. This is even more pronounced within the banks' FX derivatives books (Table A.4), where 33 cents of each dollar change within one week, and 80 cents of each dollar change beyond one year, pass through to the net FX derivatives position. Changes at intermediate maturities, between one week and one year, are by contrast largely offset at other maturities. This partly reflects mechanics: as time passes, positions roll down the maturity ladder from one bucket to the next, so changes in adjacent buckets are negatively related by construction.

Finally, we examine how the banks' net positions move with the value of the dollar. Figure 7 plots the banks' overall net dollar position against the average price of nine G10 currencies in US dollars, where an increase reflects a weaker dollar. The two are only moderately correlated in levels ($\rho = 0.36$), with the banks tending to be more net long the dollar when the dollar is weak. The correlation is somewhat higher for the USD/EUR ($\rho = 0.57$) and USD/GBP ($\rho = 0.42$) individually (Figures A.1 and A.3).

This aggregate correlation masks sharp differences across instruments, shown in Figure 8. Net loan and deposit positions are weakly negatively correlated with the price of G10 currencies ($\rho = -0.21$ and -0.10, respectively), and the net position in all remaining instruments is essentially uncorrelated with it ($\rho = 0.07$). Net FX derivatives positions, by contrast, are strongly positively correlated with it ($\rho = 0.69$), and similarly so for the USD/EUR ($\rho = 0.70$) and the USD/GBP ($\rho = 0.62$) individually (Figures A.2c and A.4c). The banks therefore go more net long the dollar through FX derivatives when the dollar is weak. This is loosely consistent with the behavior of the currency arbitrageur in macro models, which absorbs dollar selling pressure by buying dollars when they are cheap, in the expectation of profiting from their subsequent appreciation. Because these are correlations between persistent series in levels, however, they are only suggestive. In the next section, we set out a simple model of global bank currency intermediation that makes this intuition precise and guides our formal tests.

4 A Simple Model of Global Banks

To guide our empirical analysis, we present a simple model of global financial markets in the spirit of Gabaix and Maggiori (2015). Our main departure is to consider a constrained intermediary that earns both currency premia and other forms of premia on its dollar positions. This global intermediary is composed of two sub-units with access to different premia, akin to the FX dealer desks and balance-sheet operations inside global banks. We use the model to derive predictions we take to the data.

Global Banks. We begin by specifying notation. Let R_t and R_t^* denote the gross US and foreign interest rates, and S_t the exchange rate in US dollars per unit of foreign currency, so that an increase in S_t reflects a depreciation of the dollar. The excess currency return on a net long USD position is $RX_{t+1} = (F_t - S_{t+1})/S_t$, as defined in equation (6), where F_t is the one-period forward rate. Under covered interest parity, $F_t = S_t R_t / R_t^*$, it can equivalently be written as $RX_{t+1} = R_t/R_t^* - S_{t+1}/S_t$.

An intermediary chooses a net long US dollar position Q_t, measured in dollars and financed by shorting the foreign currency. Net dollar positions can earn the intermediary more than the currency return, because it need not borrow and lend at benchmark interest rates. Let R_t^B denote the average rate it earns on its dollar positions and R_t^{*B} the average rate it pays on the foreign-currency funding against them. These yields incorporate credit, term and liquidity premia through which the intermediary can also earn expected return. As such, its total return per dollar of net long position is

$$\frac{R_t^B}{R_t^{*B}} - \frac{S_{t+1}}{S_t} = \underbrace{\left(\frac{R_t}{R_t^*} - \frac{S_{t+1}}{S_t}\right)}_{RX_{t+1}} + \underbrace{\left(\frac{R_t^B}{R_t^{*B}} - \frac{R_t}{R_t^*}\right)}_{\xi_t}, \tag{9}$$

where ξ_t denotes its non-currency premia. Its expected profit on its net dollar position is then:

$$V_t = \left(\mathbb{E}_t[RX_{t+1}] + \xi_t\right) Q_t. \tag{10}$$

As in Gabaix and Maggiori (2015), the intermediary has limited risk-bearing capacity, parametrized by an agency friction of the form $V_t \geq \Gamma Q_t^2$. The parameter $\Gamma > 0$ indexes the tightness of this constraint. With the constraint binding, its net dollar position is given by:

$$Q_t = \frac{1}{\Gamma}\left(\mathbb{E}_t[RX_{t+1}] + \xi_t\right). \tag{11}$$

An intermediary therefore holds a larger net long dollar position the higher the expected excess currency return on the dollar, and the higher the non-currency premia it earns on dollar positions. When $\xi_t = 0$, this problem collapses to the financier of Gabaix and Maggiori (2015), whose position depends only on expected currency returns. When non-currency premia are large, the intermediary willingly holds a net dollar position even if its expected currency return is negative, i.e., it takes currency exposure and pays the currency premium in order to earn larger premia elsewhere.[5]

[5] Of note, the sign of ξ_t need not be positive: a dollar deposit franchise, for example, makes it attractive to be net short dollars through the balance sheet, which corresponds to $\xi_t < 0$.

We model a global bank as composed of two segmented sub-units that each solve this problem, subject to their own constraints, but with access to different premia. The first is the FX dealing desk, which trades currency risk through FX derivatives and holds position Q_t^{FXder}. Its business is currency risk, so its non-currency premia, ξ_t^{FX}, are small and stable. Its constraint, with parameter Γ_{FX}, reflects the risk limits banks impose on their dealing desks, which exist because management cannot fully monitor traders' positions. The FX dealing desk therefore behaves like the financier of Gabaix and Maggiori (2015). The second comprises the bank's lending, funding and investment operations, which run through all other instruments and hold position Q_t^{Oth}. Their non-currency premia, ξ_t^{Oth}, are large and volatile, since they move with credit spreads, term premia, liquidity conditions and the value of the bank's deposit franchise. Their constraint, with parameter Γ_{Oth}, reflects capital and balance-sheet costs. Since non-currency premia dominate their objective function, this unit in global banks behaves like the FX noise traders in Itskhoki and Mukhin (2021).

Formally, we approximate the two units' problems as follows. For the dealing desk, non-currency premia are negligible, $\xi_t^{FX} \approx 0$, so that its position responds only to expected currency returns. For the bank's balance-sheet operations, we approximate their problem by one in which currency returns play no role, since their non-currency premia are large relative to the currency premium. The two units' positions are then:[6]

$$Q_t^{FXder} \approx \frac{1}{\Gamma_{FX}} \mathbb{E}_t[RX_{t+1}], \qquad Q_t^{Oth} \approx \frac{1}{\Gamma_{Oth}} \xi_t^{Oth}. \tag{12}$$

Since each unit's constraint applies to its own position, exposures in both units can independently move the bank's overall net dollar position:

$$Q_t = Q_t^{FXder} + Q_t^{Oth}. \tag{13}$$

This separation is consistent with evidence that banks manage liquidity separately across their internal entities (Correa et al., 2020).

Market clearing. Global financial markets are populated with other currency financiers, such as hedge funds and non-bank market makers, who, like banks' FX dealer desks, take net-long USD positions to earn currency excess returns: $Q_t^A = \mathbb{E}_t[RX_{t+1}]/\Gamma_A$. There are also other market participants with positions ν_t that are inelastic with respect to expected currency returns, akin to the banks' balance-sheet operations and who we refer to as FX noise traders. International

[6] Note that these limiting approximations sharpen the model's predictions but do not need to be so extreme.

financial market clearing requires that:

$$Q_t^{FXder} + Q_t^{Oth} + Q_t^A + \nu_t = N_t, \qquad N_t = R_{t-1}N_{t-1} - NX_t, \tag{14}$$

where N_t is the net stock of dollar claims that the financial market participants must finance, which arise from the cumulative external borrowing of the US, which we take as given. N_t therefore grows with the US trade deficit $-NX_t$ and with the interest paid on existing US borrowing.

To consider how flows in the market move expected returns, we substitute equations (12) and the other financiers' demand into equation (14) and take first differences, which gives the equilibrium change in the expected excess return on the dollar,

$$\Delta\mathbb{E}_t[RX_{t+1}] = \Gamma_{FX}\,\Delta Q_t^{FXder} = \bar{\Gamma}\left(D_t - \Delta\nu_t - \Delta Q_t^{Oth}\right), \qquad \frac{1}{\bar{\Gamma}} \equiv \frac{1}{\Gamma_{FX}} + \frac{1}{\Gamma_A}, \tag{15}$$

where $D_t \equiv \Delta N_t = -NX_t + (R_{t-1} - 1)N_{t-1}$ is the net new flow of dollar borrowing that intermediaries must absorb, $\Delta\mathbb{E}_t[RX_{t+1}] \equiv \mathbb{E}_t[RX_{t+1}] - \mathbb{E}_{t-1}[RX_t]$ is the change in the expected excess return on the dollar, and $1/\bar{\Gamma}$ is the aggregate risk-bearing capacity of all financiers. Consider a shock that leads noise traders to sell dollars, $\Delta\nu_t < 0$. The banks' FX dealing desks and the market's other arbitrageurs take the other side, going more net-long the USD. The dollar depreciates on impact and is expected to appreciate subsequently, so the expected excess return rises, compensating these financiers for absorbing the USD currency risk. Positions in the bank's other instruments, by contrast, enter equation (15) exactly like those of noise traders. When the balance-sheet unit of the bank goes longer the dollar to earn other forms of premia, arbitrageurs must take the other side, and they do so only if the expected excess return on the dollar falls.

Model Predictions: The model delivers three predictions for how the components of a global bank's net dollar position relate to expected excess returns on the dollar.

1. *FX dealers.* Changes in the desk's position move with changes in the expected excess return, $\Delta\mathbb{E}_t[RX_{t+1}] = \Gamma_{FX}\,\Delta Q_t^{FXder}$. Increases in the bank's net long dollar position through FX derivatives predict higher excess returns on the dollar.

2. *Balance-sheet operations.* Changes in positions in other instruments are inelastic demand shocks, $\Delta\mathbb{E}_t[RX_{t+1}]/\Delta Q_t^{Oth} = -\bar{\Gamma}$. Increases in the bank's net long dollar position through other instruments predict lower excess returns on the dollar.

3. *The bank as a whole.* The relation between the bank's overall position and expected excess

returns combines these two opposing forces, and is ambiguous in sign. A bank that contains an arbitrageur need not look like one in aggregate.

The coefficient $\bar{\Gamma}$ is the price impact of inelastic currency flows, governed by the aggregate risk-bearing capacity of all financiers. This is the elasticity that matters for exchange rate determination. The bank contributes to it only through its FX dealing desk, and only in proportion to the desk's share of aggregate risk-bearing capacity. We test these model predictions in the subsequent section.

5 Global Banks and Currency Returns

We now test the model's predictions. Equation (15) relates changes in the expected excess return on the dollar to changes in banks' net dollar positions. Its empirical analogue is

$$\Delta DOL_{t+1} = \alpha + \beta \, \Delta Q_t^k + \epsilon_{t+1}, \qquad k \in \{\text{Total}, FXder, AllOther\}, \tag{16}$$

where $\Delta DOL_{t+1} \equiv DOL_{t+1} - DOL_t$ is the change in the one-week dollar excess return, as defined in equation (6), and $\Delta Q_t^k \equiv Q_t^k - Q_{t-1}^k$ is the change in the UK dealer banks' aggregate net dollar position over the preceding week, either in total or through FX derivatives or other instruments. Since expected returns are unobserved, we proxy the change in the expected excess return with the change in the realized excess return. We use the dollar factor, rather than the excess return against any single currency, because our data record banks' net dollar positions against all other currencies combined. As such, we measure the return on these positions with an equally weighted average of the dollar's excess returns against the G10 currencies. In robustness exercises, we show that the results hold for the dollar's excess returns against the euro and sterling individually, the two currencies most likely to account for the bulk of UK banks' dollar positions. The model predicts $\beta > 0$ for FX derivatives, $\beta < 0$ for other instruments, and a coefficient of ambiguous sign for the bank's overall position.

Table 3 reports our baseline results from estimating equation (16). Column (1) shows that changes in banks' overall net dollar position have no predictive power for future dollar excess returns: the coefficient is small, negative and statistically insignificant, and the adjusted R^2 is close to zero. Taken as a whole, UK dealer banks do not behave like the global currency arbitrageur.

This aggregate result masks sharp differences across instruments, as the model predicts. Column (2) shows that increases in banks' net long dollar position through FX derivatives predict higher dollar excess returns. The coefficient of 1.26 is significant at the 1% level: a $1

billion increase in net-long USD FX derivatives positions over a week predicts a 1.26 basis point increase in the dollar excess return the following week. Consistent with prediction 1, banks' FX derivatives books behave like the financier of Gabaix and Maggiori (2015), going longer the dollar when its expected excess return rises. Column (3) shows the opposite for positions in all other instruments, where increases in banks' net long dollar position through them predicting lower dollar excess returns. The coefficient is −1.34 and is significant at the 5% level: a $1 billion increase in net positions in other instruments predicts a 1.34 basis point decrease in the dollar excess return the following week. Consistent with prediction 2, these balance-sheet positions behave like inelastic demand for dollars, which these other instruments pay in the form of a lower expected currency return. Both coefficients remain significant when the two components enter together in column (4).

Table A.5 decomposes positions in other instruments further by instrument. Most of the coefficients are negative, including those on loans, repo, other secured lending and other derivatives, although individually they are imprecisely estimated. The most negative and only statistically significant coefficient is that on bonds, of −1.77. The negative coefficient on other instruments in Table 3 therefore reflects the combined behavior of banks' balance-sheet positions rather than any single instrument, although bond holdings appear to contribute significance.

Banks' two sub-units could in principle offset each other one for one, in which case banks' FX derivatives books would simply hedge the currency exposures of their balance-sheet operations, such that neither would move the banks' overall net dollar position. Section 3 shows that this is not the case: each additional dollar of net long dollar exposure through FX derivatives is accompanied by a fall of only 46 cents in net dollar exposure through other instruments, so changes in FX derivatives positions move banks' overall net dollar position and the bank takes currency risk in these instances. The bank's overall position over time therefore mixes an unhedged component of its FX derivatives positions, which should predict higher returns, with positions in other instruments, which should predict lower returns. This is why the overall net USD position in column (1) has no predictive power.

We make this decomposition explicit in Table 4. We first regress changes in net FX derivatives positions on changes in net positions in all other instruments, and take the residual, $\Delta FXder_t^{\perp}$, as the component of FX derivatives positions that is not offset elsewhere on banks' balance sheets. We then define $\Delta NonFXder_t$ as the change in the banks' overall net position less this residual, which captures positions in other instruments together with the part of FX derivatives positions that co-moves with them. By construction, the two components sum to the change in the banks' overall net dollar position and are uncorrelated with each other. The

unhedged component of FX derivatives positions predicts higher dollar excess returns, with a coefficient of 0.77 that is significant at the 5% level, while the remaining component predicts lower returns, with a coefficient of −2.03. The two components pull in opposite directions, and together they account for the absence of predictability in the banks' overall position.

Table 5 estimates equation (16) separately for net positions in each maturity bucket. Column (1) shows that changes in banks' overall net dollar position do not predict higher dollar excess returns at any maturity. If anything, banks lose: the coefficient on positions maturing between three months and one year is −1.37 and significant at the 1% level, and the coefficient on positions maturing beyond one year is also negative, though insignificant. Columns (2) and (3) show why. Increases in net FX derivatives positions predict higher dollar excess returns at maturities up to three months, with coefficients between 1.17 and 1.77 that are all statistically significant, but not at longer maturities. Increases in net positions in other instruments, by contrast, predict lower dollar excess returns at every maturity, with coefficients that grow in magnitude from −0.92 within one week to −4.25 at three months to one year. At short maturities, the returns earned through FX derivatives offset those paid through other instruments. At longer maturities, FX derivatives positions no longer predict higher returns, so nothing offsets the returns paid through other instruments, and the banks' overall position predicts lower dollar excess returns.

Robustness. Our results are similar when we measure currency returns using the dollar's excess returns against the euro or sterling individually. Increases in net FX derivatives positions predict higher excess returns on the dollar against both currencies, and bond positions again carry the most negative coefficient among other instruments (Tables A.6 and A.7). The results by maturity are also similar: FX derivatives positions predict higher returns at short maturities, positions in other instruments predict lower returns at all maturities, and the banks' overall position predicts lower returns at three months to one year (Tables A.8 and A.9). In the orthogonalized decomposition, the component of positions outside the unhedged part of FX derivatives continues to predict significantly lower returns against both currencies, while the unhedged FX derivatives component retains its positive sign and similar magnitude, though it is less precisely estimated for individual currencies (Tables A.10 and A.11).

6 Conclusion

Modern international macro models place a global arbitrageur at the center of exchange rate determination, but leave open who it is. We use supervisory data on the entire on- and off-

balance-sheet US dollar positions of UK global dealer banks, the most natural candidates for this role, to answer this question. These banks intermediate around $35 trillion of gross dollar positions, overwhelmingly through FX derivatives, but carry only small net dollar exposures, typically less than $100 billion in absolute value.

Our main finding is that global banks contain an arbitrageur, but do not act like one overall. Increases in banks' net long dollar positions through FX derivatives predict higher dollar excess returns, as theory predicts for the global arbitrageur. Increases through their other instruments predict lower returns, as for the inelastic flows the arbitrageur absorbs. Across their entire balance sheet, banks' net dollar positions do not predict currency returns. A simple model rationalizes these findings: banks' dealing desks earn currency premia, while their balance-sheet operations forgo them in exchange for larger credit, term and liquidity premia elsewhere.

These results suggest that the risk-bearing capacity that matters for exchange rates is not that of global banks' consolidated balance sheets, but is spread across banks' dealing desks as well as potentially other intermediaries, such as hedge funds and non-bank market makers.

References

Avdjiev, Stefan, Wenxin Du, Catherine Koch, and Hyun Song Shin, "The dollar, bank leverage, and deviations from covered interest parity," *American Economic Review: Insights*, 2019, *1* (2), 193–208.

Barbiero, Omar, Falk Bräuning, Gustavo Joaquim, and Hillary Stein, "Dealer risk limits and currency returns," Technical Report, Federal Reserve Bank of Boston 2024.

Becker, Jonas, Maik Schmeling, and Andreas Schrimpf, "Global Bank Lending and Exchange Rates," Working Paper, Bank for International Settlements December 2023.

Bippus, Balduin, Simon Lloyd, and Daniel Ostry, "Granular banking flows and exchange-rate dynamics," Working Paper, Bank of England 2026.

Borio, Claudio, Robert McCauley, and Patrick McGuire, "Dollar debt in FX swaps and forwards: huge, missing and growing," *BIS Quarterly Review*, 2022, (05).

Brunnermeier, Markus K, Stefan Nagel, and Lasse H Pedersen, "Carry trades and currency crashes," *NBER macroeconomics annual*, 2008, *23* (1), 313–348.

Camanho, Nelson, Harald Hau, and Hélène Rey, "Global Portfolio Rebalancing and Exchange Rates," *The Review of Financial Studies*, 2022, *35* (11), 5228–5274.

Correa, Ricardo, Wenxin Du, and Gordon Y Liao, "US banks and global liquidity," Technical Report, National Bureau of Economic Research 2020.

Dao, Mai C, Pierre-Olivier Gourinchas, and Oleg Itskhoki, "Breaking parity: Equilibrium exchange rates and currency premia," Technical Report, National Bureau of Economic Research 2025.

Della Corte, Pasquale, Steven J Riddiough, and Lucio Sarno, "Currency premia and global imbalances," *The Review of Financial Studies*, 2016, *29* (8), 2161–2193.

Du, Wenxin, Alexander Tepper, and Adrien Verdelhan, "Deviations from covered interest rate parity," *The Journal of Finance*, 2018, *73* (3), 915–957.

_ , Georg Strasser, and Adrien Verdelhan, "Repo and fx swap: A tale of two markets," Technical Report, Working paper 2025.

Evans, Martin D. D. and Richard K. Lyons, "Order Flow and Exchange Rate Dynamics," *Journal of Political Economy*, 2002, *110*, 170–180.

Froot, Kenneth A and Tarun Ramadorai, "Currency returns, intrinsic value, and institutional-investor flows," *The Journal of Finance*, 2005, *60* (3), 1535–1566.

Gabaix, Xavier and Matteo Maggiori, "International liquidity and exchange rate dynamics," *The Quarterly Journal of Economics*, 2015, *130* (3), 1369–1420.

Gourinchas, Pierre-Olivier, Walker Ray, and Dimitri Vayanos, "A preferred-habitat model of term premia, exchange rates, and monetary policy spillovers," *American Economic Review*, 2025, *115* (11), 3788–3824.

Greenwood, Robin, Samuel Hanson, Jeremy C Stein, and Adi Sunderam, "A quantity-driven theory of term premia and exchange rates," *The Quarterly Journal of Economics*, 2023, *138* (4), 2327–2389.

Hoke, Sinem Hacioglu, Daniel Ostry, Hélène Rey, Adrien Rousset Planat, Vania Stavrakeva, and Jenny Tang, "Topography of the fx derivatives market: A view from london," *NBER Working Paper*, 2026, (w34588).

Itskhoki, Oleg and Dmitry Mukhin, "Exchange Rate Disconnect in General Equilibrium," *Journal of Political Economy*, 2021, *129* (8), 2183–2232.

_ and _ , "What drives the exchange rate?," *IMF Economic Review*, 2025, *73* (1), 86–117.

Kekre, Rohan and Moritz Lenel, "Exchange rates, natural rates, and the price of risk," *University of Chicago, Becker Friedman Institute for Economics Working Paper*, 2024, (2024-114).

_ and _ , "The flight to safety and international risk sharing," *American Economic Review*, 2024, *114* (6), 1650–1691.

_ and _ , "A model of us monetary policy and the global financial cycle," Technical Report, Working paper 2025.

Liao, Gordon Y and Tony Zhang, "The hedging channel of exchange rate determination," *The Review of Financial Studies*, 2025, *38* (1), 1–38.

Lustig, Hanno, Nikolai Roussanov, and Adrien Verdelhan, "Common risk factors in currency markets," *The Review of Financial Studies*, 2011, *24* (11), 3731–3777.

Menkhoff, Lukas, Lucio Sarno, Maik Schmeling, and Andreas Schrimpf, "Information flows in foreign exchange markets: Dissecting customer currency trades," *The Journal of Finance*, 2016, *71* (2), 601–634.

Moskowitz, Tobias J, Chase P Ross, Sharon Y Ross, and Kaushik Vasudevan, "Risk, Specialization, and Covered-Interest Parity," *The Journal of Finance*, 2026, *Forthcoming.*

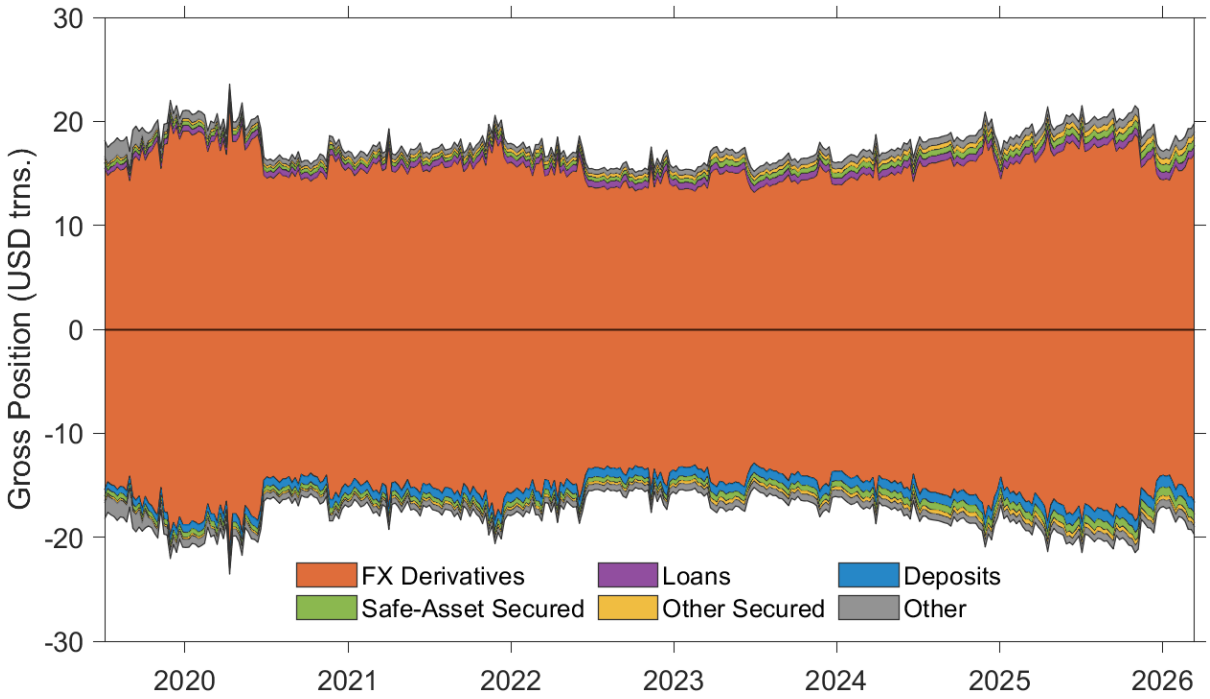
Ostry, Daniel A., "Tails of Foreign Exchange-at-Risk (FEaR)," Cambridge Working Papers in Economics 2343, Faculty of Economics, University of Cambridge June 2023.

Prudential Regulation Authority, "Instructions for Completing PRA110," Regulatory reporting instructions, Bank of England, London 2019.

__ , "PRA110: Cash Flow Mismatch Reporting Template," Regulatory reporting template, Bank of England, London 2019.

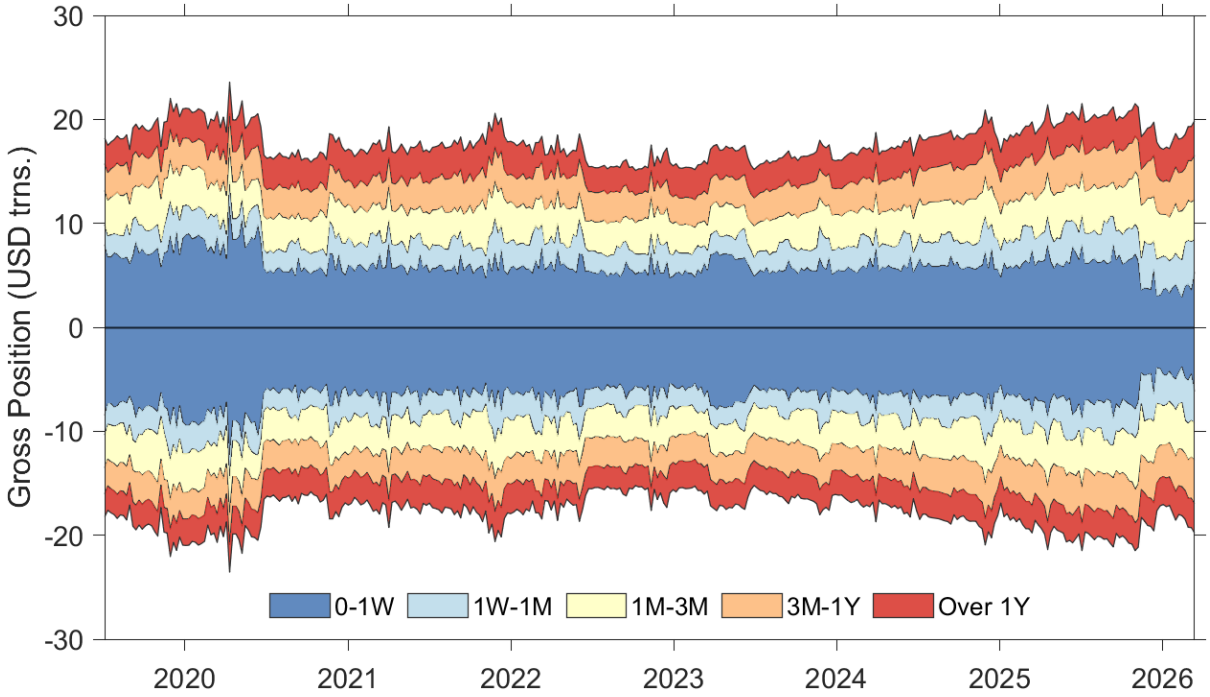
Rime, Dagfinn, Andreas Schrimpf, and Olav Syrstad, "Covered interest parity arbitrage," *The Review of Financial Studies*, 2022, *35* (11), 5185–5227.

Figure 2: Gross USD Position of UK Dealer Banks, by Instrument



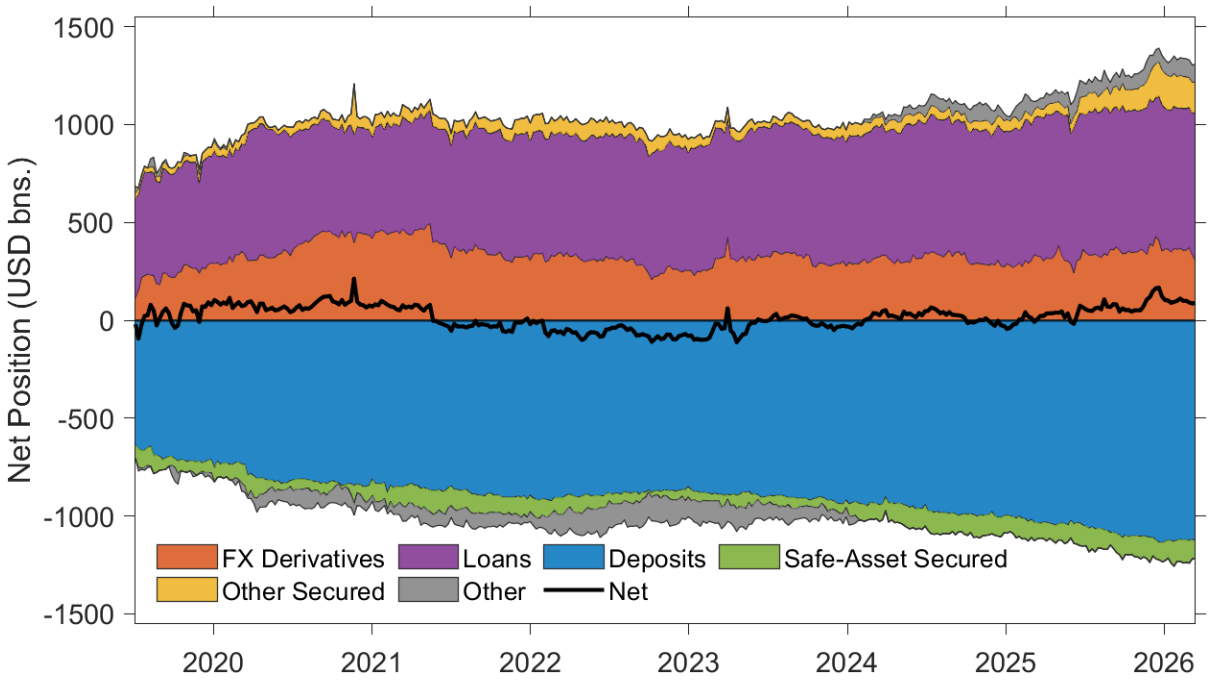
Notes: Gross USD position of UK global banks, by instrument, weekly from Jul/2019 to Mar/2026. Values are in trillions of USD. Other aggregates many smaller categories, including other derivatives, bonds and other miscellaneous positions.

Figure 3: Gross USD Position of UK Dealer Banks, by Maturity



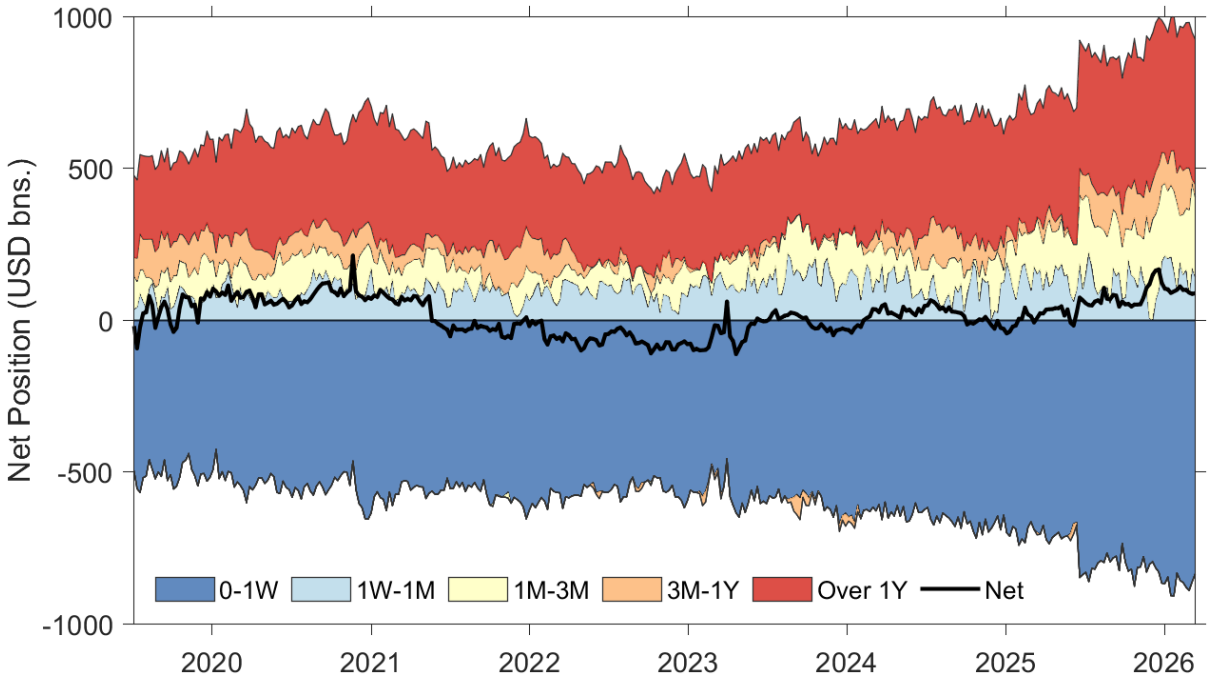
Notes: Gross USD position of UK global banks, by maturity, weekly from Jul/2019 to Mar/2026. Values are in trillions of USD. Maturity buckets are 0 to 1 week, 1 week to 1 month, 1 month to 3 months, 3 months to 1 year, and over 1 year.

Figure 4: Net USD Position of UK Dealer Banks, by Instrument



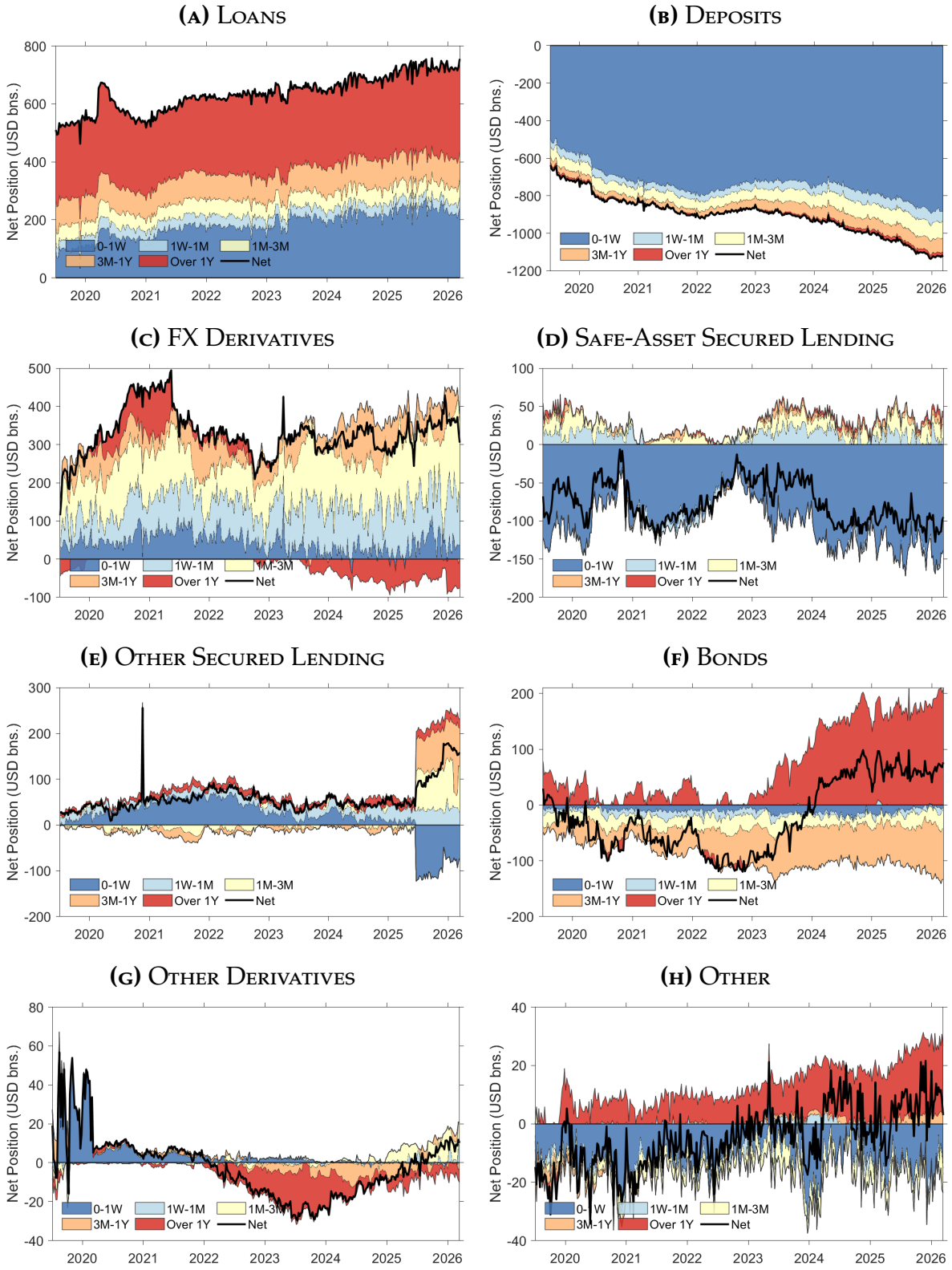
Notes: Net USD position of UK global banks, by instrument, weekly from Jul/2019 to Mar/2026. Values are in billions of USD. Other aggregates many smaller categories, including other derivatives, bonds and other miscellaneous positions.

Figure 5: Net USD Position of UK Dealer Banks, by Maturity



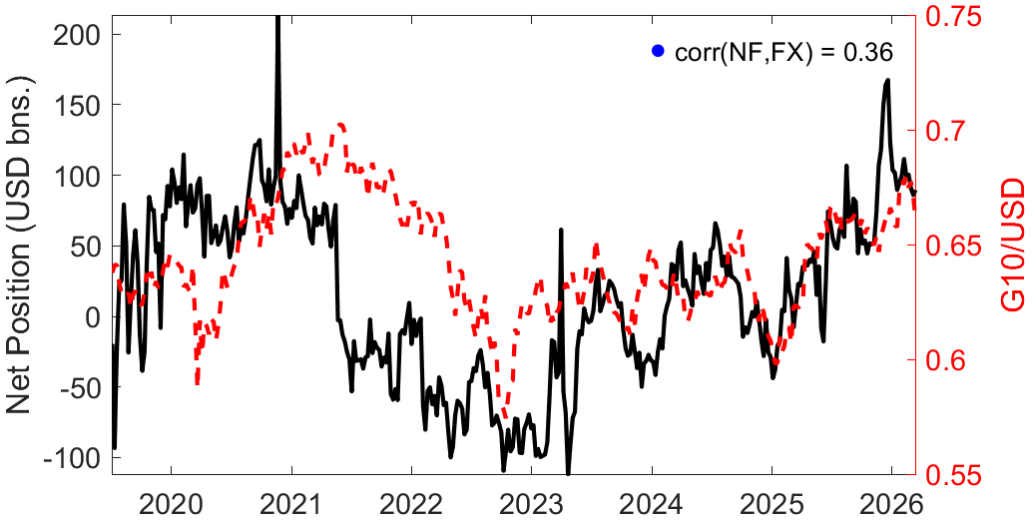
Notes: Net USD position of UK global banks, by maturity, weekly from Jul/2019 to Mar/2026. Values are in billions of USD. Maturity buckets are 0 to 1 week, 1 week to 1 month, 1 month to 3 months, 3 months to 1 year, and over 1 year.

Figure 6: Net USD Position of UK Dealer Banks, by Instrument and Maturity



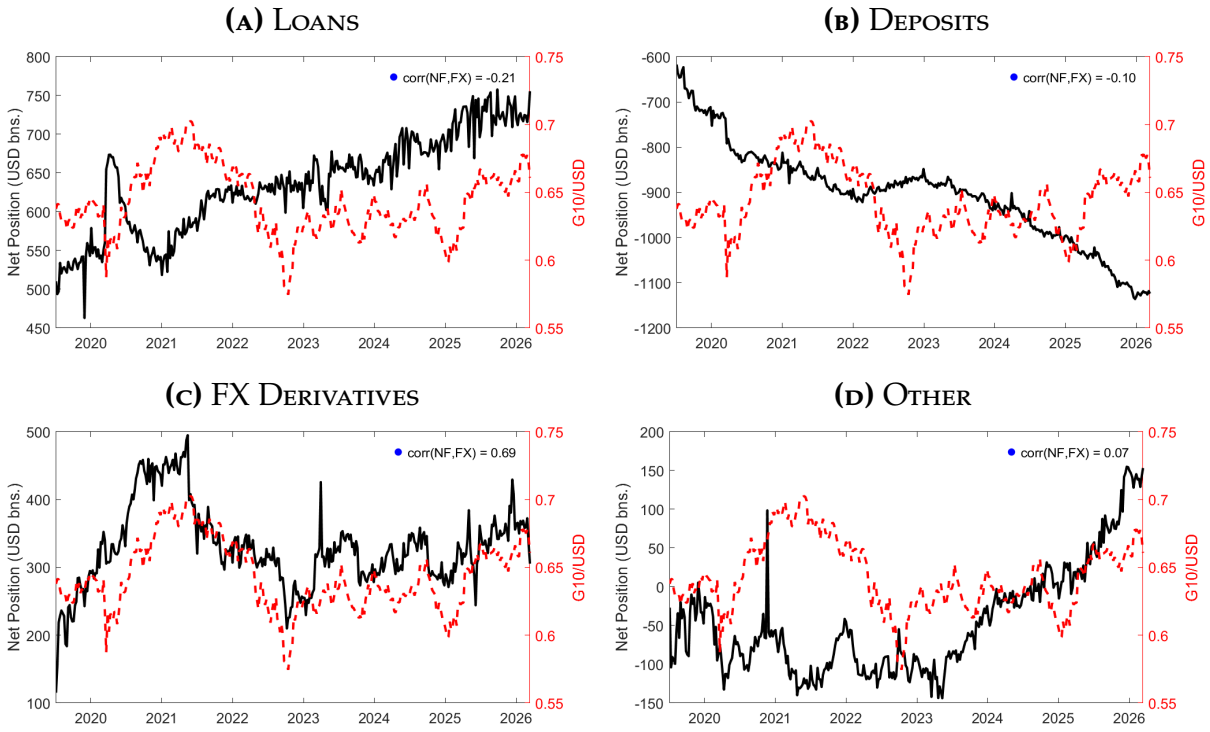
Notes: Net USD position of UK global banks, by instrument and maturity, weekly from Jul/2019 to Mar/2026. Values are in billions of USD. Maturity buckets are 0 to 1 week, 1 week to 1 month, 1 month to 3 months, 3 months to 1 year, and over 1 year.

FIGURE 7: UK DEALER BANKS' NET USD POSITION AND THE US DOLLAR



Notes: Net USD position of UK dealer banks, in billions of USD, plotted against the average price of nine G10 currencies in USD (increases reflect USD depreciations), weekly from Jul/2019 to Mar/2026.

Figure 8: UK Dealer Banks' Net USD Position, by Instrument, and the US Dollar



Notes: Net USD position of UK dealer banks, by instrument, plotted against the average price of nine G10 currencies in USD (increases reflect USD depreciations), weekly from Jul/2019 to Mar/2026. Values are in billions of USD. Other aggregates many smaller categories, including other derivatives, bonds and other miscellaneous positions.

Table 1
1-Week Changes in UK Dealer Banks' Net USD Position:
Co-movement Across Instruments

	ΔFXder$_t$	ΔLoans$_t$	ΔDeposits$_t$
ΔFXder$_t$	1.00***	−0.30***	−0.05
	(0.00)	(0.09)	(0.12)
ΔLoans$_t$	−0.24***	1.00***	−0.95***
	(0.06)	(0.00)	(0.12)
ΔDeposits$_t$	−0.01	−0.31***	1.00***
	(0.03)	(0.05)	(0.00)
ΔSafeSecured$_t$	0.03	−0.09**	0.05
	(0.05)	(0.04)	(0.06)
ΔOtherSecured$_t$	−0.16	0.01	0.02
	(0.13)	(0.04)	(0.05)
ΔBond$_t$	−0.08**	−0.02	−0.11
	(0.03)	(0.06)	(0.08)
ΔOtherDer$_t$	−0.02	−0.01	0.02
	(0.02)	(0.01)	(0.04)
ΔOther$_t$	0.01	−0.03	0.05
	0.02	0.02	0.04
Total	0.54	0.23	0.02

Notes: Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. Sample size is 349 weekly observations.

Table 2
1-Week Changes in UK Dealer Banks' Net USD Position:
Co-movement Across Maturities

	$\Delta\text{Full}_t^{0-1W}$	$\Delta\text{Full}_t^{1W-1M}$	$\Delta\text{Full}_t^{1M-3M}$	$\Delta\text{Full}_t^{3M-1Y}$	$\Delta\text{Full}_t^{>1Y}$
$\Delta\text{Full}_t^{0-1W}$	1.00^{***}	-0.28^{***}	-0.11^{**}	-0.27^{**}	-0.36^{**}
	(0.00)	(0.05)	(0.05)	(0.13)	(0.14)
$\Delta\text{Full}_t^{1W-1M}$	-0.44^{***}	1.00^{***}	-0.72^{***}	0.07	-0.15
	(0.08)	(0.00)	(0.04)	(0.15)	(0.16)
$\Delta\text{Full}_t^{1M-3M}$	-0.15^{**}	-0.64^{***}	1.00^{***}	-0.60^{***}	0.06
	(0.07)	(0.04)	(0.00)	(0.14)	(0.15)
$\Delta\text{Full}_t^{3M-1Y}$	-0.10^{**}	0.02	-0.16^{***}	1.00^{***}	-0.10
	(0.05)	(0.04)	(0.03)	(0.00)	(0.08)
$\Delta\text{Full}_t^{>1Y}$	-0.07^{**}	-0.02	0.01	-0.05	1.00^{***}
	(0.03)	(0.02)	(0.02)	(0.04)	(0.00)
Total	0.24	0.07	0.02	0.14	0.45

Notes: Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively. Sample size is 349 weekly observations.

TABLE 3
UK DEALER BANKS' NET USD POSITION AND 1-WEEK DOLLAR EXCESS RETURNS

ΔDOL_{t+1}	(1)	(2)	(3)	(4)
a	0.01	−0.76	−0.38	−0.74
	(3.64)	(3.71)	(3.58)	(3.62)
$\Delta Full_t$	−0.25			
	(0.28)			
$\Delta FXder_t$		1.26***		0.79**
		(0.43)		(0.38)
$\Delta AllOther_t$			−1.34**	−1.03**
			(0.53)	(0.52)
N	349.00	349.00	349.00	349.00
Adj. R^2(%)	−0.16	2.38	3.25	3.81

Notes: Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

TABLE 4

UK DEALER BANKS' NET USD POSITION AND 1-WEEK DOLLAR EXCESS RETURNS: ORTHOGONALIZED COMPONENTS

ΔDOL_{t+1}	(1)	(2)	(3)
a	−0.07	0.57	0.57
	(3.68)	(3.58)	(3.60)
$\Delta FXder_t^{\perp}$	0.77**		0.77**
	(0.38)		(0.37)
$\Delta Non\text{-}FXder_t$		−2.03**	−2.03**
		(0.85)	(0.83)
N	349.00	349.00	349.00
Adj. R^2(%)	0.49	2.83	3.34

Notes: $\Delta FXder^{\perp}$ is the residual from a regression of net FX swap flows on the changes in all other instruments; $\Delta NonFXder$ is the net full USD position less that residual $FXder^{\perp}$. Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

TABLE 5
UK DEALER BANKS' NET USD POSITION AND 1-WEEK DOLLAR EXCESS RETURNS: BY MATURITY

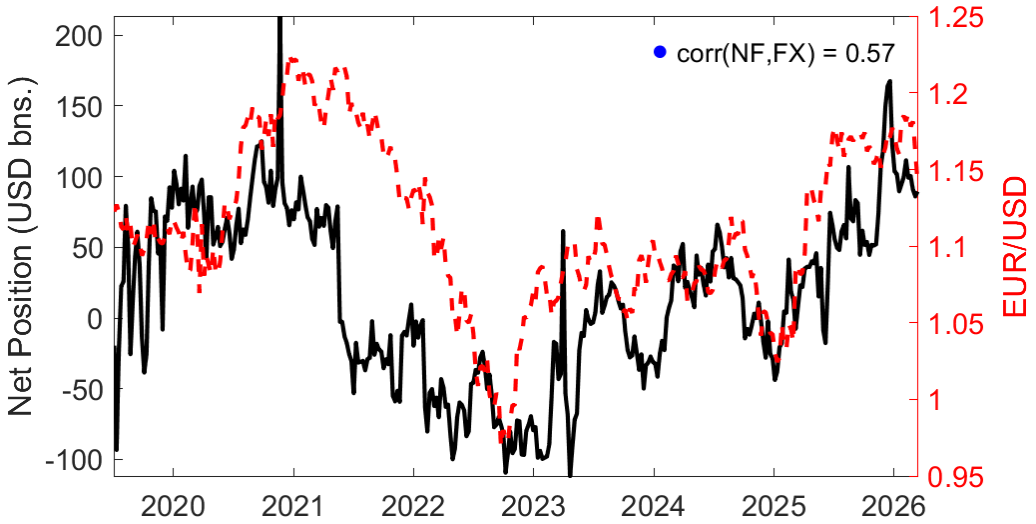
ΔDOL_{t+1}	(1)	(2)	(3)
a	0.14	−1.04	0.48
	(3.64)	(3.72)	(3.79)
$\Delta Full_t^{0-1W}$	−0.06		
	(0.31)		
$\Delta Full_t^{1W-1M}$	0.01		
	(0.34)		
$\Delta Full_t^{1M-3M}$	−0.16		
	(0.38)		
$\Delta Full_t^{3M-1Y}$	−1.37***		
	(0.51)		
$\Delta Full_t^{>1Y}$	−0.44		
	(0.88)		
$\Delta FXder_t^{0-1W}$		1.17**	
		(0.46)	
$\Delta FXder_t^{1W-1M}$		1.76***	
		(0.54)	
$\Delta FXder_t^{1M-3M}$		1.77***	
		(0.56)	
$\Delta FXder_t^{3M-1Y}$		0.62	
		(0.54)	
$\Delta FXder_t^{>1Y}$		1.10	
		(0.90)	
$\Delta AllOther_t^{0-1W}$			−0.92**
			(0.36)
$\Delta AllOther_t^{1W-1M}$			−1.97**
			(0.90)
$\Delta AllOther_t^{1M-3M}$			−3.64***
			(1.15)
$\Delta AllOther_t^{3M-1Y}$			−4.25***
			(1.33)
$\Delta AllOther_t^{>1Y}$			−1.61
			(1.23)
N	349.00	349.00	349.00
Adj. R^2(%)	1.15	3.14	8.42

Notes: Maturity buckets are 0 to 1 week, 1 week to 1 month, 1 month to 3 months, 3 months to 1 year, and over 1 year. Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Appendix

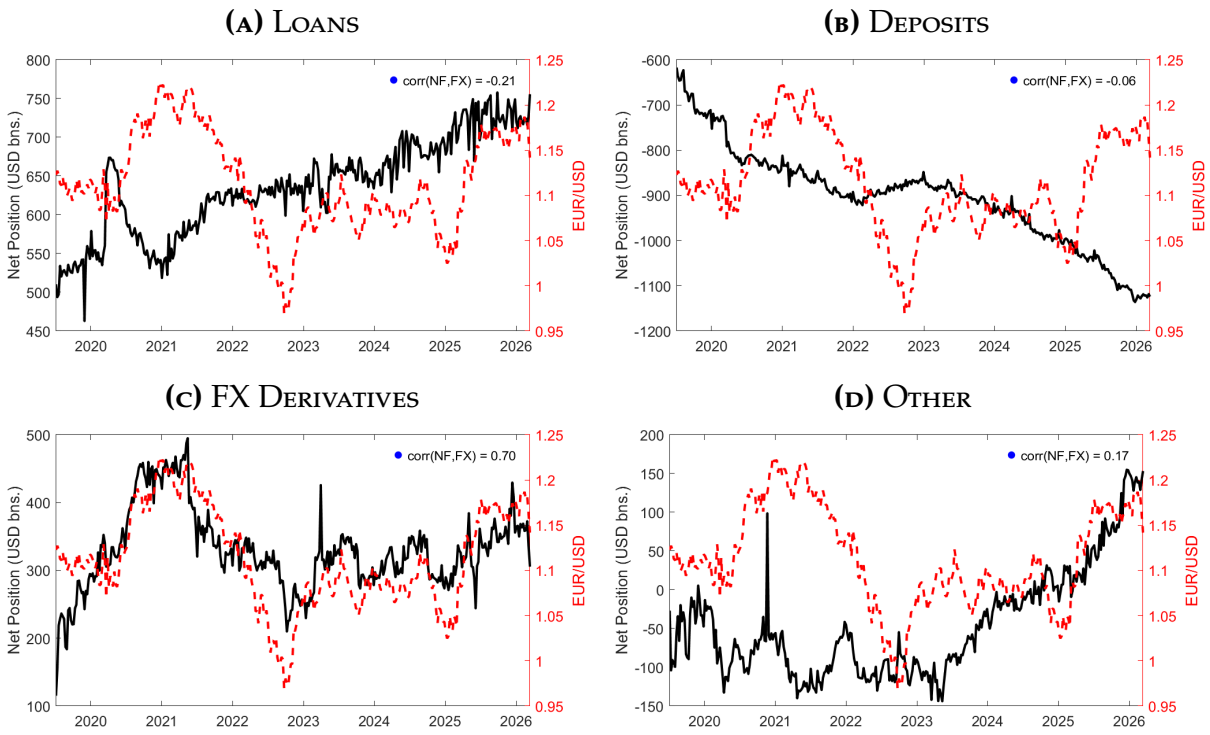
A Additional Tables and Figures

Figure A.1: UK Dealer Banks' Net USD Position and the USD/EUR Exchange Rate



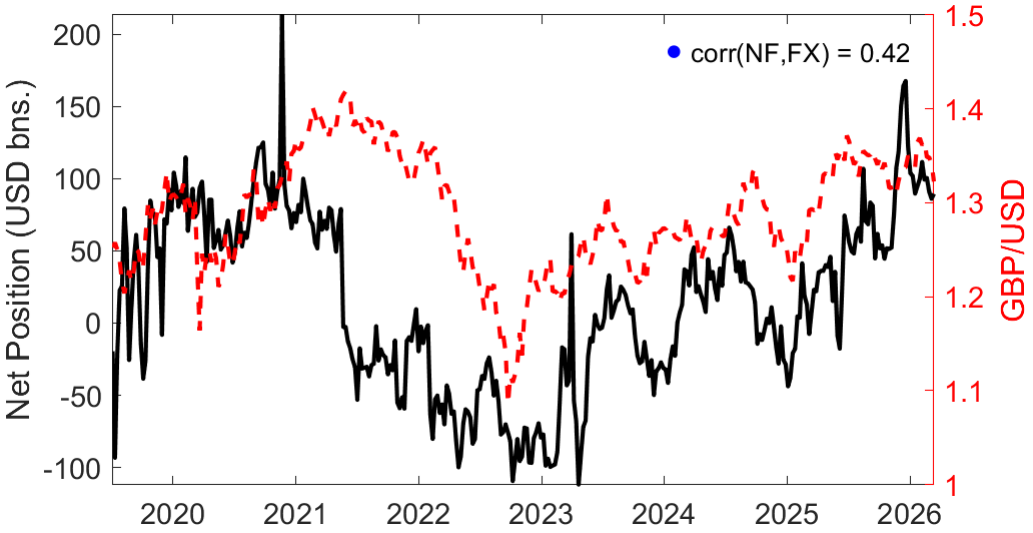
Notes: Net USD position of UK dealer banks, in billions of USD, plotted against the price EUR in USD (increases reflect USD depreciations), weekly from Jul/2019 to Mar/2026.

Figure A.2: UK Dealer Banks' Net USD Position, by Instrument, and the USD/EUR Exchange Rate



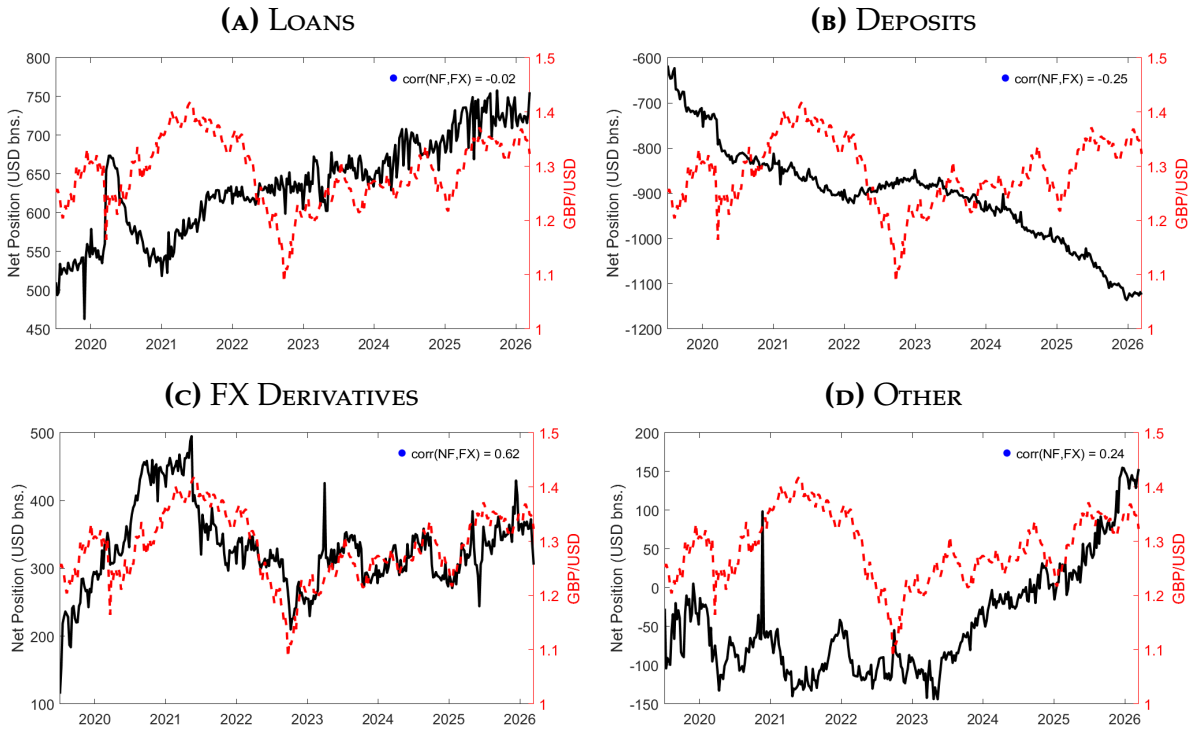
Notes: Net USD position of UK dealer banks, by instrument, plotted against the price of EUR in USD (increases reflect USD depreciations), weekly from Jul/2019 to Mar/2026. Values are in billions of USD. Other aggregates many smaller categories, including other derivatives, bonds and other miscellaneous positions.

Figure A.3: UK Dealer Banks' Net USD Position and the USD/GBP Exchange Rate



Notes: Net USD position of UK dealer banks, in billions of USD, plotted against the price GBP in USD (increases reflect USD depreciations), weekly from Jul/2019 to Mar/2026.

Figure A.4: Net USD Flows by Instrument and the USD/GBP Exchange Rate



Notes: Net USD position of UK dealer banks, by instrument, plotted against the price of GBP in USD (increases reflect USD depreciations), weekly from Jul/2019 to Mar/2026. Values are in billions of USD. Other aggregates many smaller categories, including other derivatives, bonds and other miscellaneous positions.

Table A.1
Spot and Forward Exchange Rate Tickers

	Spot	1W Forward
GBP	TDGBPSP	TDGBP1W
EUR	TDEURSP	TDEUR1W
CAD	TDCADSP	TDCAD1W
CHF	TDCHFSP	TDCHF1W
JPY	TDJPYSP	TDJPY1W
NZD	TDNZDSP	PZUSD1W
AUD	TDAUDSP	TDAUD1W
SEK	TDSEKSP	TDSEK1W
NOK	TDNOKSP	TDNOK1W

Notes: The table shows the tickers for LSEG Datastream spot and one-week forward mid-quote exchange rates against the US dollar, requested with the unpadded suffix (ER#S). All quotes are converted to USD per unit of foreign currency.

Table A.2
UK Dealer Banks' Net USD Position: Summary Statistics

	Full	FXder	Loans	Deposits	SafeSecured	OtherSecured	Bond	OtherDer	Other
Panel A: Levels									
Mean	15.27	329.35	635.38	−903.42	−76.56	59.25	−20.93	−1.94	−5.85
Median	15.63	325.37	636.36	−894.19	−83.56	51.69	−34.68	−0.50	−5.35
Std Dev	60.40	59.67	62.43	108.26	26.83	32.40	63.10	15.81	11.84
Skewness	0.00	0.36	−0.17	0.00	0.35	2.37	0.27	0.84	−0.52
Kurtosis	2.37	3.65	2.31	3.10	2.06	10.14	1.72	4.41	3.70
AC1	0.92	0.92	0.94	0.98	0.91	0.84	0.97	0.91	0.80
N	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00
Panel B: 1-Week Changes									
	Full	FXder	Loans	Deposits	SafeSecured	OtherSecured	Bond	OtherDer	Other
Mean	0.31	0.55	0.70	−1.45	−0.08	0.38	0.13	−0.03	0.11
Median	0.53	0.54	0.43	−0.93	0.00	−0.24	0.39	−0.04	0.16
Std Dev	23.59	21.14	18.59	10.52	11.34	17.17	13.07	6.64	7.41
Skewness	−0.23	−0.19	0.21	−0.71	0.07	−0.20	−0.15	1.30	−0.24
Kurtosis	9.12	7.37	7.93	8.44	4.11	112.18	4.61	23.51	3.38
AC1	−0.18	−0.24	−0.33	−0.36	−0.20	−0.44	−0.30	−0.24	−0.43
N	349.00	349.00	349.00	349.00	349.00	349.00	349.00	349.00	349.00

Notes: Values are in billions of USD.

Table A.3
USD Currency Excess Returns: Summary Statistics

Panel A: Levels			
	G10	EUR	GBP
Mean	−0.03	−0.02	0.02
Median	−0.11	−0.08	−0.02
Std Dev	1.10	1.03	1.25
Skewness	0.04	0.41	−0.09
Kurtosis	7.02	5.54	7.47
AC1	−0.11	−0.11	−0.08
N	350.00	350.00	350.00
Panel B: 1-Week Changes			
	G10	EUR	GBP
Mean	0.07	0.28	0.15
Median	−4.96	−0.82	−7.24
Std Dev	163.77	154.08	183.93
Skewness	0.58	0.18	0.55
Kurtosis	10.15	6.21	9.99
AC1	−0.56	−0.54	−0.50
N	349.00	349.00	349.00

Notes: Levels are in percentage per week, and 1-week changes are in basis points.

Table A.4
UK Dealer Banks' Net USD FX Derivatives Positions:
Correlations Across Maturities

	$\Delta\text{FXder}_t^{0-1W}$	$\Delta\text{FXder}_t^{1W-1M}$	$\Delta\text{FXder}_t^{1M-3M}$	$\Delta\text{FXder}_t^{3M-1Y}$	$\Delta\text{FXder}_t^{>1Y}$
$\Delta\text{FXder}_t^{0-1W}$	1.00^{***}	-0.32^{***}	0.03	-0.07	-0.01
	(0.00)	(0.03)	(0.04)	(0.09)	(0.19)
$\Delta\text{FXder}_t^{1W-1M}$	-0.70^{***}	1.00^{***}	-0.78^{***}	0.14	0.09
	(0.08)	(0.00)	(0.04)	(0.13)	(0.29)
$\Delta\text{FXder}_t^{1M-3M}$	0.05	-0.69^{***}	1.00^{***}	-0.86^{***}	-0.01
	(0.09)	(0.04)	(0.00)	(0.11)	(0.20)
$\Delta\text{FXder}_t^{3M-1Y}$	-0.03	0.03	-0.19^{***}	1.00^{***}	-0.27^{*}
	(0.04)	(0.03)	(0.03)	(0.00)	(0.15)
$\Delta\text{FXder}_t^{>1Y}$	0.00	0.00	0.00	-0.07^{***}	1.00^{***}
	(0.02)	(0.01)	(0.01)	(0.03)	(0.00)
Total	0.33	0.02	0.06	0.14	0.80

Notes: Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table A.5
UK Dealer Banks' Net USD Position and 1-Week Dollar Excess Returns:
Full Instrument Decomposition

ΔDOL_{t+1}	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(10)
a	0.01	−0.76	0.57	0.83	−0.09	0.06	0.17	−0.11	−0.18
	(3.64)	(3.71)	(3.59)	(4.16)	(3.64)	(3.67)	(3.66)	(3.68)	(3.64)
$\Delta Full_t$	−0.25								
	(0.28)								
$\Delta FXder_t$		1.26***							
		(0.43)							
$\Delta Loans_t$			−0.90						
			(0.84)						
$\Delta Deposits_t$				0.62					
				(1.80)					
$\Delta SafeSecured_t$					−0.30				
					(0.75)				
$\Delta OtherSecured_t$						−0.33			
						(0.32)			
$\Delta Bond_t$							−1.77*		
							(1.05)		
$\Delta OtherDer_t$								−1.82	
								(1.57)	
$\Delta Other_t$									1.04
									(1.01)
N	349.00	349.00	349.00	349.00	349.00	349.00	349.00	349.00	349.00
Adj. R^2(%)	−0.16	2.38	0.76	−0.13	−0.24	−0.17	1.70	0.26	−0.06

Notes: Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table A.6
UK Dealer Banks' Net USD Position and 1-Week USD/EUR Excess Returns: Full Instrument Decomposition

ΔDOL_{t+1}	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(10)
a	−0.24	−0.80	0.32	0.71	−0.29	−0.18	−0.08	−0.28	−0.41
	(3.38)	(3.42)	(3.43)	(4.01)	(3.38)	(3.39)	(3.39)	(3.38)	(3.37)
$\Delta Full_t$	−0.14								
	(0.27)								
$\Delta FXder_t$		0.94**							
		(0.40)							
$\Delta Loans_t$			−0.85						
			(0.62)						
$\Delta Deposits_t$				0.68					
				(1.43)					
$\Delta SafeSecured_t$					−0.06				
					(0.77)				
$\Delta OtherSecured_t$						−0.28			
						(0.30)			
$\Delta Bond_t$							−1.48*		
							(0.88)		
$\Delta OtherDer_t$								−0.17	
								(1.27)	
$\Delta Other_t$									1.27
									(1.03)
N	349.00	349.00	349.00	349.00	349.00	349.00	349.00	349.00	349.00
Adj. R^2(%)	−0.24	1.40	0.77	−0.07	−0.29	−0.19	1.29	−0.28	0.09

Notes: Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table A.7
UK Dealer Banks' Net USD Position and 1-Week USD/GBP Excess Returns: Full Instrument Decomposition

ΔDOL_{t+1}	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(10)
a	−0.03	−0.79	0.81	1.87	−0.21	−0.20	0.14	−0.18	−0.29
	(4.16)	(4.23)	(4.08)	(4.61)	(4.14)	(4.19)	(4.17)	(4.19)	(4.17)
$\Delta Full_t$	−0.36								
	(0.37)								
$\Delta FXder_t$		1.17**							
		(0.49)							
$\Delta Loans_t$			−1.36						
			(0.90)						
$\Delta Deposits_t$				1.39					
				(1.90)					
$\Delta SafeSecured_t$					−0.82				
					(0.83)				
$\Delta OtherSecured_t$						0.15			
						(0.27)			
$\Delta Bond_t$							−2.10*		
							(1.16)		
$\Delta OtherDer_t$								−1.44	
								(2.67)	
$\Delta Other_t$									1.38
									(1.38)
N	349.00	349.00	349.00	349.00	349.00	349.00	349.00	349.00	349.00
Adj. R^2(%)	−0.08	1.53	1.60	0.34	−0.03	−0.27	1.94	−0.02	0.02

Notes: Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table A.8
UK Dealer Banks' Net USD Position and 1-Week USD/EUR Excess Returns: by Maturity

ΔDOL_{t+1}	(1)	(2)	(3)
a	−0.28	−0.92	0.09
	(3.43)	(3.43)	(3.57)
$\Delta Full_t^{0-1W}$	−0.06		
	(0.32)		
$\Delta Full_t^{1W-1M}$	−0.02		
	(0.33)		
$\Delta Full_t^{1M-3M}$	−0.29		
	(0.39)		
$\Delta Full_t^{3M-1Y}$	−1.01**		
	(0.47)		
$\Delta Full_t^{>1Y}$	0.03		
	(0.73)		
$\Delta FXder_t^{0-1W}$		0.81*	
		(0.45)	
$\Delta FXder_t^{1W-1M}$		1.28***	
		(0.49)	
$\Delta FXder_t^{1M-3M}$		1.19**	
		(0.51)	
$\Delta FXder_t^{3M-1Y}$		0.47	
		(0.54)	
$\Delta FXder_t^{>1Y}$		1.29	
		(0.90)	
$\Delta AllOther_t^{0-1W}$			−0.63**
			(0.30)
$\Delta AllOther_t^{1W-1M}$			−1.38*
			(0.77)
$\Delta AllOther_t^{1M-3M}$			−3.22***
			(0.98)
$\Delta AllOther_t^{3M-1Y}$			−3.02***
			(1.17)
$\Delta AllOther_t^{>1Y}$			−0.90
			(0.97)
N	349.00	349.00	349.00
Adj. R^2(%)	0.09	1.37	5.51

Notes: Maturity buckets are 0 to 1 week, 1 week to 1 month, 1 month to 3 months, 3 months to 1 year, and over 1 year. Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table A.9
UK Dealer Banks' Net USD Position and 1-Week USD/GBP Excess Returns: by Maturity

ΔDOL_{t+1}	(1)	(2)	(3)
a	0.16	−0.99	0.45
	(4.16)	(4.20)	(4.33)
$\Delta Full_t^{0-1W}$	−0.08		
	(0.40)		
$\Delta Full_t^{1W-1M}$	−0.10		
	(0.43)		
$\Delta Full_t^{1M-3M}$	−0.27		
	(0.41)		
$\Delta Full_t^{3M-1Y}$	−1.89***		
	(0.66)		
$\Delta Full_t^{>1Y}$	−0.55		
	(0.91)		
$\Delta FXder_t^{0-1W}$		1.15**	
		(0.52)	
$\Delta FXder_t^{1W-1M}$		1.59***	
		(0.60)	
$\Delta FXder_t^{1M-3M}$		1.57***	
		(0.59)	
$\Delta FXder_t^{3M-1Y}$		0.09	
		(0.60)	
$\Delta FXder_t^{>1Y}$		1.26	
		(0.95)	
$\Delta AllOther_t^{0-1W}$			−0.92*
			(0.53)
$\Delta AllOther_t^{1W-1M}$			−1.87*
			(1.11)
$\Delta AllOther_t^{1M-3M}$			−3.57***
			(1.33)
$\Delta AllOther_t^{3M-1Y}$			−4.99***
			(1.52)
$\Delta AllOther_t^{>1Y}$			−1.79
			(1.41)
N	349.00	349.00	349.00
Adj. R^2(%)	2.26	2.41	7.62

Notes: Maturity buckets are 0 to 1 week, 1 week to 1 month, 1 month to 3 months, 3 months to 1 year, and over 1 year. Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table A.10
UK Dealer Banks' Net USD Position and 1-Week USD/EUR Excess Returns: Orthogonalized Components

ΔDOL_{t+1}	(1)	(2)	(3)
a	−0.28	0.14	0.14
	(3.40)	(3.35)	(3.36)
$\Delta FXder_t^{\perp}$	0.54		0.54
	(0.41)		(0.39)
$\Delta NonFXder_t$		−1.33**	−1.33**
		(0.62)	(0.60)
N	349.00	349.00	349.00
Adj. R^2(%)	0.15	1.23	1.39

Notes: $\Delta FXder^{\perp}$ is the residual from a regression of net FX swap flows on the changes in all other instruments; $\Delta NonFXder$ is the net full USD position less that residual $FXder^{\perp}$. Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table A.11
UK Dealer Banks' Net USD Position and 1-Week USD/GBP Excess Returns: Orthogonalized Components

ΔDOL_{t+1}	(1)	(2)	(3)
a	−0.15	0.49	0.49
	(4.18)	(4.06)	(4.07)
$\Delta FXder_t^{\perp}$	0.59		0.59
	(0.41)		(0.39)
$\Delta NonFXder_t$		−2.03*	−2.03*
		(1.13)	(1.11)
N	349.00	349.00	349.00
Adj. R^2(%)	0.08	2.18	2.27

Notes: $\Delta FXder^{\perp}$ is the residual from a regression of net FX swap flows on the changes in all other instruments; $\Delta NonFXder$ is the net full USD position less that residual $FXder^{\perp}$. Standard errors are Newey-West with four lags. ***, **, * denote statistical significance at the 1%, 5% and 10% levels, respectively.