Internet Appendix

When a Market Changes Hands:
Dollar Funding and the Price of a Domestic Safe Asset

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The Internet Appendix collects the supporting material for each section of the paper. Section IA.1 documents the data sets, the holder statistics, and the bill-by-bill split of holdings behind the account of who held Makam in Section 1 of the paper. Section IA.2 reports the period estimates, the rate coefficients and interactions of the ownership regression, and the variants that support the relation between foreign ownership and foreign-rate pass-through in Section 2. Section IA.3 reports alternative specifications of the comparison of affected and exempt yields after the 2011 tax change in Section 4.2. Section IA.4 reports the regressions behind the account of foreign demand in Section 2.3, the construction and variants of the hedge-calendar test, and the year-end pause. Section IA.5 proves Proposition 1 and derives the funding-market responses that the hedge-calendar estimates measure. Section IA.6 describes the data and variants for the other bill markets of Section 6. Sections, tables, figures, and equations numbered with the prefix IA are in the Internet Appendix, and all others are in the paper.

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IA.1 Data and holders

Section 1 of the paper describes who held Makam as foreign ownership rose and fell, using holdings, transaction, and fund records that the paper introduces briefly. This section lists the data sets, explains the revision of the holder statistics, and splits each sector's change in holdings, bill by bill, into new bills, redemptions, revaluation, and trades.

IA.1.1 Data sources

Table IA.1 lists each data set with its span, coverage, and use. The mutual-fund portfolios of 2020 to 2025 come from Praedicta, a commercial provider of Israeli mutual-fund data. Aggregated across funds, the Makam positions in these portfolios have a correlation of 0.999 with the Bank of Israel's holdings of money-market and other mutual funds over the 72 month-ends of the data set, and a root-mean-squared error of ILS 1.82 billion. Over the 14 month-ends from November 2022 to December 2023 the correlation is 0.99994. The money-market funds alone match the Bank of Israel's money-market-fund aggregate with a correlation of 0.9991. We classify funds by name. Asset lists of retirement savings funds come from Gemel-Net, the public database of Israel's Capital Market, Insurance and Savings Authority, and from the managers' own security lists.

Construction of the paper's tables. In Tables 1 and 2, other domestic holders are Makam outstanding minus reported holdings. The Bank of Israel computed the group as a residual through December 2019 and reports every sector directly from January 2020, and the two reports agree in early 2020. Rates in Table 1 are weekly means of daily data on days when TELBOR, the Makam yield, and the foreign funding rate are all observed. In Table 3, column 5 covers January 2010 to June 2012, when the foreign share stayed below 46%. Column 4 uses Makam yields at 2, 4.5, 7.5, and 11 months with maturity-matched rates over 620 weeks, so week effects leave only differences across maturities within a week. In Table 4, rates are means over the final seven calendar days of the previous month. Table 4 of the paper uses remaining-maturity buckets of 1–3, 3–6, 6–9, and 9–12.6 months, with each bucket's hedged spread measured at the bucket midpoint. In Table 6, p-values come from a wild cluster bootstrap by security with the null imposed, 200,000 Webb-weight draws, and all nuisance coefficients re-estimated, and remaining maturity is measured in exact calendar days.

TELBOR and the Bank of Israel's deposit rates. Section 1.3 of the paper uses TELBOR as the benchmark of domestic banks. Figure IA.1 compares overnight TELBOR

Table IA.1: Data sets

Data set	Span	Coverage	Use
Foreign-exchange transactions	2007–2025	960,522 institutional trades	institutions' hedges, scheduled maturities, and rollovers
Spot and forward exchange rates	2008–2026	daily matched-tenor quotes	foreign funding rate
Dollar overnight-index-swap rates	2008–2026	daily matched-tenor rates	dollar leg of the foreign funding rate
TELBOR and policy rates	1999–2025	daily rates and tender windows	TELBOR
Makam tenders	2011–2026	389 tenders; allocations, yields, value and redemption dates	tender purchases, issue and redemption dates
Interest-rate swap transactions	2017–2025	194,731 transactions	shekel overnight-index swaps
Exchange trades by investor type	2014–2026	243,117 bill-day-type records	exchange purchases and sales by investor type
Historical mutual-fund portfolios	2008–2020	769,344 records; 3,470 funds	fund portfolios and classification
Mutual-fund portfolios from Praedicta	2020–2025	72 month-ends	fund holdings, assets, and portfolio weights
Mutual funds by fund type	2017–2022	monthly, part of the sector	funds that track foreign stock indices
Deposit tenders	2017–2024	91 months of tender windows	Bank of Israel deposit rate
Sector holdings of Makam	1995–2026	377 months × 10 sectors	foreign and sector ownership
Holdings by bill and holder sector	from January 2020	monthly	bill-by-bill changes in holdings
Foreign transactions in Makam	2017–August 2022	tender purchases, secondary purchases and sales, and redemptions	foreign acquisitions
Exchange end-of-day prices, Makam	2008–2025	27,603 bill-days; 103 bills	bill yields and revaluation of holdings
Exchange end-of-day prices, bonds	1995–2025	89,071 bond-days; 70 bonds	exempt bonds in the 2011 comparison

Notes: This table reports the data sets used in the paper and the Internet Appendix. Spans and counts refer to the data sets as received. Coverage gives the number of records or, for fund portfolios, month-ends. Data for the other bill markets are in Section IA.6. Sources: Bank of Israel (transactions, holdings, tenders, and auctions), Praedicta, TASE Smart Money, the Tel Aviv Stock Exchange, and LSEG.

with the policy rate and the rate on the Bank of Israel's deposit window, a standing facility at which banks can deposit, from January 2010 to June 2025. Overnight TELBOR was within 1 basis point of the policy rate on 99% of the 3834 days, with a mean absolute difference of 0.1 basis points. The deposit window paid 10 to 50 basis points less on most days. Three-month TELBOR, the rate the paper uses, is the fixed rate in a swap on overnight TELBOR.

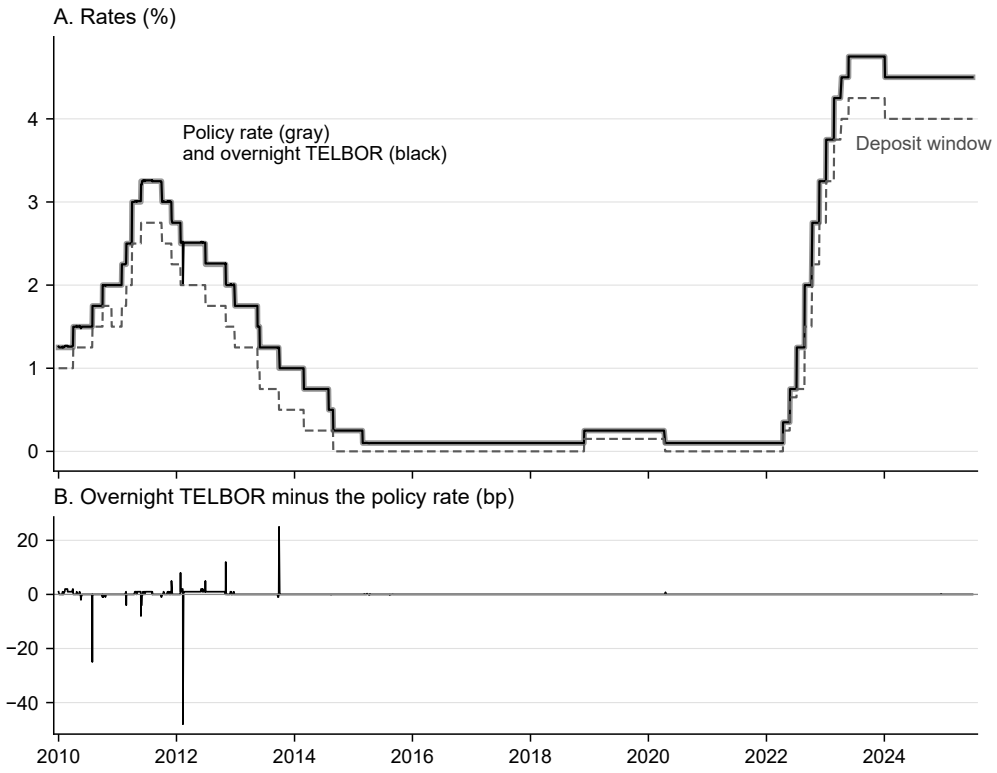


Figure IA.1: **Overnight TELBOR and the Bank of Israel's deposit rates, January 2010 to June 2025.** Rates are daily. Overnight TELBOR and the policy rate coincide at the scale of Panel A. The data come from the Bank of Israel.

IA.1.2 TELBOR and the foreign funding rate

Section 1.3 of the paper defines TELBOR and the foreign funding rate. This subsection gives their construction and the checks on TELBOR.

TELBOR, which the Bank of Israel publishes daily, is the Israeli interbank rate. Three-month TELBOR is the fixed rate in a shekel overnight-index swap. The floating leg of the swap is overnight TELBOR, which tracks the policy rate, so three-month TELBOR carries little bank credit risk. One-month TELBOR is also the fixed rate in a shekel overnight-index swap. The floating leg of both swaps, overnight TELBOR, moves essentially one-for-one with

the rate in the Bank of Israel's deposit tenders. Six-, nine-, and twelve-month TELBOR are the fixed rates in forward-rate agreements on the three-month swap rate.

TELBOR minus the Makam yield is the paper's main object of study, so we check whether the quoted TELBOR matches executed trades. The Bank of Israel's confidential derivatives trade repository allows the check, which is unavailable for most interbank benchmarks. The 8 shekel overnight-index swaps with a spot start and maturities of 30 to 94 days that traded from April to October 2022 all lie within 2.2 basis points of TELBOR at the same date and maturity, with a median absolute difference of 0.7 basis points and a median signed difference of +0.3 basis points. Quoted TELBOR therefore matches the rates at which banks trade.

Three-month TELBOR shows no premium over the policy rate. From July 2020 to December 2021, when the policy rate stayed at 0.1%, three-month TELBOR averaged 0.9 basis points below the policy rate, while TELBOR minus the Makam yield averaged 8 basis points and the Makam yield was below zero in 26 of the 77 weeks. A bank credit premium in TELBOR therefore cannot account for TELBOR minus the Makam yield.

The foreign funding rate follows equation (1) of the paper. At each maturity and date from 2010 onward, we take spot exchange rates, forward points, and the dollar overnight-index-swap rate at the same maturity from LSEG (formerly Refinitiv). Forward points are the forward exchange rate minus the spot exchange rate, and the dollar overnight-index-swap rate is based on the federal funds rate. We convert all yields and rates to the same annualization and maturity conventions. TELBOR minus the Makam yield parallels the spreads between money-market rates and bill yields that measure the convenience of bills (Nagel (2016), d'Avernas and Vandeweyer (2024)).

The hedged spread on Makam, $y_{t,\tau} - r^F_{t,\tau}$, is the return to an investor that borrows dollars, buys shekels at spot, invests the shekels in Makam, and buys the dollars back forward. Let X_t be the spot exchange rate in shekels per dollar, $X_{t,\tau}$ the forward exchange rate for delivery at $t + \tau$, and $r^{\$}_{t,\tau}$ the dollar funding rate. Per dollar borrowed, the trade has the following cash flows.

	Today, t	At maturity, $t+\tau$
Borrow dollars	$+1$ USD	$-(1+\tau r^{\$}_{t,\tau})$ USD
Sell the dollars at spot	-1 USD	
	$+X_t$ ILS	
Buy Makam	$-X_t$ ILS	$+X_t(1+\tau y_{t,\tau})$ ILS
Buy the dollars back forward		$+(1+\tau r^{\$}_{t,\tau})$ USD
		$-X_{t,\tau}(1+\tau r^{\$}_{t,\tau})$ ILS
Net	0	$X_t\,\tau\,(y_{t,\tau}-r^{F}_{t,\tau})$ ILS

The trade has zero net cash flow today. By equation (1) of the paper, buying the dollars back costs $X_{t,\tau}(1+\tau r^{\$}_{t,\tau}) = X_t(1+\tau r^{F}_{t,\tau})$ shekels, so the payoff is positive whenever Makam yields more than the foreign funding rate, including when Makam yields less than TELBOR.

IA.1.3 Nonresidents' Makam purchases and their dollar forwards

Figure IA.2 matches nonresidents' Makam purchases to their dollar forwards. The Bank of Israel's data on foreign transactions and its foreign-exchange data share no identifier, so we match by name at the level of the parent institution. Names that match more than one institution stay unmatched, and we drop trades between entities of the same group. Forward positions are outright forwards and FX-swap far legs in shekels against dollars with a tenor of at least 21 days, signed from the customer's perspective. Makam purchases are tender and secondary purchases at trade date, and net purchases subtract secondary sales. Custodian and pooled client accounts, whose beneficial owners are not observed, made 12.1% of gross purchases and count as unmatched.

From June 2020 to August 2022, foreign institutions with dollar forward positions made 87% of nonresidents' gross Makam purchases. In a weekly panel of the 9 matched institutions over 118 weeks, we regress an institution's new forward purchases of dollars in a week on its net Makam purchases in the same week, with institution and week effects,

$$h_{iw} = \alpha_i + \alpha_w + \beta\, M_{iw} + \varepsilon_{iw}, \tag{IA.1}$$

where h_{iw} is the shekel value of the new dollar-buying forward legs with a tenor of at least 21 days that institution i executes in week w, M_{iw} is its net Makam purchases in the same week, both in ILS billion, α_i and α_w are institution and week effects, and ε_{iw} is the regression error. Weeks run from Friday to Thursday. The week effects absorb timing common to all institutions, so β measures the relation between an institution's net Makam purchases and

its new forward purchases of dollars. The foreign-exchange data cover forwards booked with Israeli banks and institutions, so hedges arranged offshore are not counted. An institution's new forward purchases of dollars rise by $\beta = 0.8$ shekels per shekel of its net Makam purchases ($t = 5.0$ with Driscoll–Kraay errors and 4 lags, $t = 5.1$ with errors clustered by institution and week, and wild cluster bootstrap $p = 0.011$ by institution with Webb weights, MacKinnon and Webb (2018)). The slope does not rest on the largest purchase weeks. Figure IA.2 groups institution-weeks into 20 equal-count bins of net purchases. Without the 54 institution-weeks in its rightmost bin, $\beta = 1.2$ ($t = 5.9$), and without the 108 in its two extreme bins, $\beta = 1.4$ ($t = 4.9$), with errors clustered by institution and week. The far legs of FX swaps are 97% of the notional of these new forward purchases of dollars. With h_{iw} restricted to swap far legs, $\beta = 0.8$ ($t = 6.2$), and with outright forwards alone, $\beta = 0.04$ ($t = 0.8$), again with errors clustered by institution and week. Every reported statistic pools at least 5 institutions, and no institution is named.

IA.1.4 Revision of the holder statistics

For January 2020 onward, the paper uses the report on Makam holdings by sector that the Bank of Israel introduced in May 2025. For earlier months, the paper uses the earlier report, which the Bank of Israel still publishes. For the months both reports cover, the May 2025 report revises bank holdings from January 2020 onward. It also lowers nonresident holdings at the 16 month-ends from September 2022 to December 2023, by ILS 14.3 billion on average in 2023 and by at most ILS 24.1 billion (October 2023), or 7.4 percentage points of the foreign share. Nonresident holdings at all other month-ends are unchanged.

The Bank of Israel attributes the 2023 correction to double reporting of Makam in banks' repurchase transactions with nonresidents. The holdings by bill and holder sector record the correction on a separate line.[1] Bill-level foreign holdings sum to the May 2025 report once the correction line is included. The ownership regression is unchanged with either report. On the 712 weeks both cover, ending in January 2024, foreign-rate pass-through rises by 8.0 basis points per 10 percentage points of foreign ownership with the May 2025 report ($t = 3.4$) and by 8.1 with the earlier report ($t = 3.5$). With the bank share from the same report added, as in column 3 of Table 3, the two estimates are 13.0 ($t = 3.1$) and 11.4 ($t = 2.9$).

[1] Bank of Israel statistics staff, personal communication, October 2026.

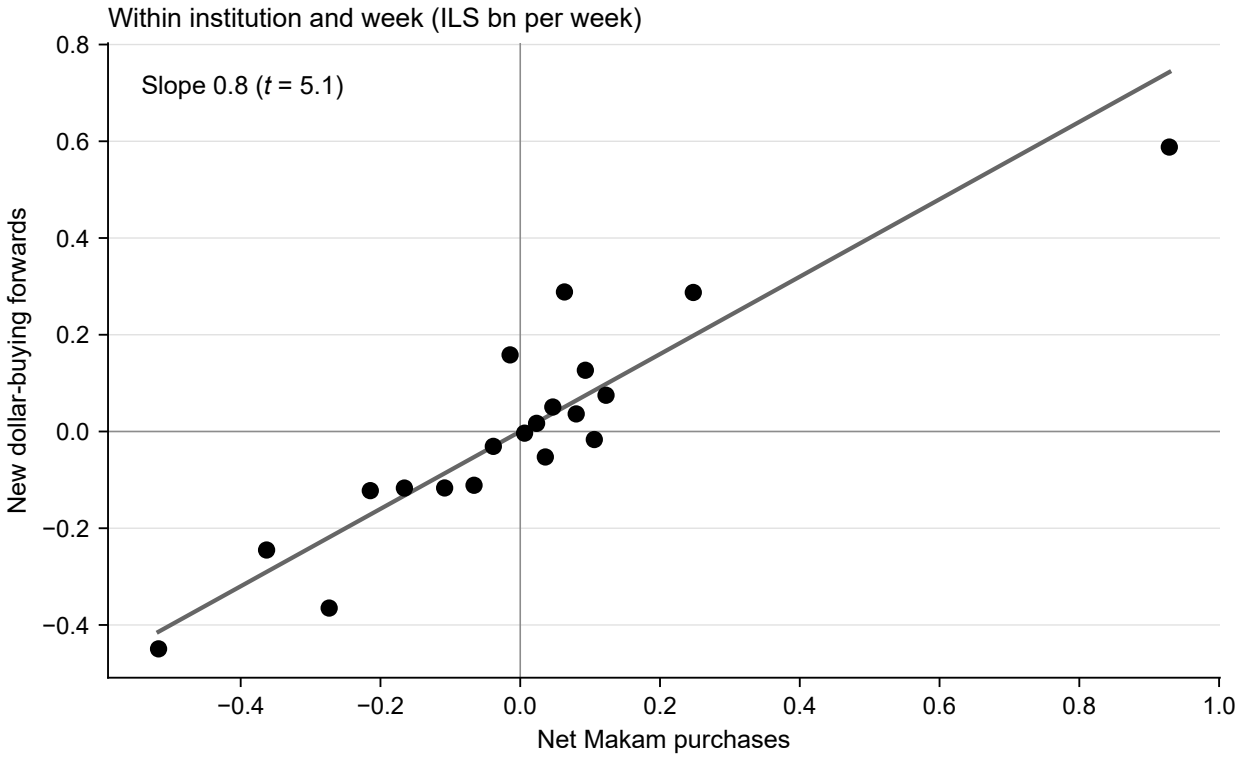


Figure IA.2: **Nonresidents' Makam purchases and their dollar forwards, June 2020 to August 2022.** The sample is the 9 nonresident institutions matched to the foreign-exchange data. Net Makam purchases are tender and secondary purchases minus secondary sales, and new forward purchases of dollars are outright forwards and FX-swap far legs with a tenor of at least 21 days. Institution-weeks, net of institution and week means, are grouped into 20 equal-count bins of net purchases, and each bin pools at least 5 institutions. The line is the least-squares fit on institution-weeks, with t-statistics clustered by institution and week. The data come from the Bank of Israel.

IA.1.5 Changes in holdings, bill by bill

For each sector and bill, we split the monthly change in holdings into acquisitions of new and reopened bills, redemptions, revaluation, and net trades in outstanding bills. Redemptions remove the previous month's holdings of maturing bills, and revaluation applies the bill's TASE closing-price return to the previous month's holding. For a reopening, acquisitions subtract the opening holding and its revaluation from the closing holding. Net trades are the residual. A reconciliation residual aligns reported sector holdings with the market value of the bills, so that net trades sum to zero across sectors. Over the exit, November 2022 to November 2024, net trades sum to ILS −13.4 billion across reported sectors and ILS 13.4 billion in the reconciliation residual, which records accounting and reporting differences that no sector absorbs. The foreign rows track the Bank of Israel's data on foreign transactions. From February 2020 to August 2022 the holdings imply foreign acquisitions of ILS 183.0 billion, against ILS 177.0 billion in the data on foreign transactions, with a monthly correlation of 0.99 (Table IA.2, Panel A).

The data on foreign transactions also split foreign acquisitions by venue (Panel B). The data on foreign transactions miss a small part of the change in foreign holdings, and the results do not depend on the missing part. From May 2020 to December 2021, the change in foreign holdings exceeds recorded purchases minus sales and redemptions by ILS 3.9 billion, and valuation at TASE month-end prices, dating by settlement, and the removal of duplicate entries each change the excess by at most ILS 0.03 billion. The excess is spread over 31 bills, mostly 2021 bills in their first months, with 73% in the five largest contributors. Positions reach an international custodian's account through transfers that the data on foreign transactions do not show.[2] For the 15 bills that foreign investors held only inside the window, 6% of the ILS 45.4 billion that arrives through those transfers matches no recorded purchase by another foreign account. The ownership regressions use the reported holder statistics and do not use the data on foreign transactions. The change in foreign holdings in the hedge-calendar regressions is acquisitions minus redemptions from the data on foreign transactions. For the results that use the data on foreign transactions, placing all of December's excess in the year-end weeks moves the year-end coefficient on foreign acquisitions from −0.81 to −0.73 per week ($t = -8.5$). Adding every positive excess as unrecorded purchases moves the maturity shares of foreign purchases by at most 0.7 percentage points.

[2]The custodian is Euroclear.

Table IA.2: Foreign transactions and changes in holdings by bill (ILS billion)

Panel A. Foreign holdings by bill and recorded transactions, February 2020–August 2022

	From holdings	Recorded
Redemptions	134.5	134.6
Foreign acquisitions before redemptions	183.0	177.0
Monthly correlation of foreign acquisitions	0.99	

Panel B. Recorded foreign transactions by venue

	Dec 2017–Dec 2019	May 2020–Dec 2021	Mar 2022–Aug 2022
Bought at tenders	11.9	62.3	27.4
Bought in the secondary market	59.4	82.7	54.9
Sold in the secondary market	28.7	59.6	36.1
Redeemed at maturity	33.1	62.3	40.9
Purchases minus sales and redemptions	+9.5	+23.2	+5.3
Change in foreign holdings	+9.3	+27.1	+4.9
Tenders, % of purchases	17	43	33

Panel C. Change in foreign holdings, end-November 2022 to end-November 2024

Holdings of new bills	51.5
Maturing bills	−111.2
Net purchases of outstanding bills	−12.1
Revaluation	2.7
Change in bill-level foreign holdings	−69.2
Bank of Israel correction line	−4.1
Change in reported foreign holdings	−73.3
Holdings of new bills, % of maturing bills	46

Panel D. Domestic sectors

	Jul 2020–Dec 2021	Dec 2022–Nov 2024
Banks, holdings of new bills	15.8	142.2
Banks, net sales of outstanding bills	24.1	103.0
Mutual funds, change in holdings		89.0
Mutual funds, net purchases of outstanding bills		132.5
Long-term institutional investors, change in holdings		30.5

Notes: Changes run from the end of the month before each window to the end of its last month. Panel D uses the holdings by bill and holder sector, whose sector totals differ from the published holder statistics. Holdings are at market value, and entries are rounded separately. Sources: Bank of Israel (holdings, foreign transactions, and tenders) and the Tel Aviv Stock Exchange.

IA.1.6 Banks in the accumulation and foreign holders in the exit

Banks were the largest net sellers of outstanding bills in the accumulation, July 2020 to December 2021, as foreign holdings rose. Across bills within a month, we regress each domestic sector's net sales of an outstanding bill on foreign net purchases of the same bill, with month effects and errors clustered by month, over the 18 months from July 2020 through December 2021. Banks sold 0.47 shekels per shekel of foreign net purchases ($t = 2.5$), long-term institutional investors 0.34 ($t = 1.9$), and mutual funds 0.15 ($t = 2.8$). Together the three sectors supplied 0.96 shekels of each shekel that foreign investors bought, and other holders and the reconciliation residual supplied the rest.

The supervisory balance sheets of the five largest banks show which banks reduced their Makam holdings.[3] Two banks held 96% of the five banks' Makam in 2019, and their holdings fell in succession. The second-largest holder reduced its holdings from ILS 19.3 billion in June 2019 to ILS 3.5 billion in May 2020. The largest holder reduced its holdings from ILS 13.1 billion in May 2020 to ILS 0.9 billion in December 2020. By January 2021 the five largest banks together held ILS 0.4 billion, none more than ILS 0.2 billion. Neither bank sold for lack of liquid assets. Their liquidity coverage ratios rose while they sold, from 121 to 138% and from 120 to 132% between the fourth quarters of 2019 and 2020 (Table IA.22, Panel E), and reserves at the Bank of Israel count toward the ratio as Level 1 assets, as Makam does.

Banks kept trading Makam after their own holdings were gone. From July 2020 through December 2021, bank holdings of new bills rose by ILS 15.8 billion, ILS 5.2 billion of bank-held bills matured, and banks sold ILS 24.1 billion of outstanding bills on net (Table IA.2, Panel D).

Foreign holdings fell by ILS 73.3 billion from the November 2022 peak to the trough in November 2024 and rose again to ILS 17.4 billion in April 2025.[4] Most of the fall came from bills that matured without replacement. Foreign holdings of new bills equaled 46% of the foreign bills that matured, and the Bank of Israel's correction line, which removes double reporting from repurchase transactions only in aggregate, accounts for ILS 4.1 billion of the fall (Table IA.2, Panel C). The split by bill counts transactions in a bill's first month of trading in holdings of new bills. On the exchange, foreign investors' net sales came to

[3] From July 2020 through December 2021, bank holdings fell by ILS 13.6 billion in the holder statistics and the five largest banks' holdings by ILS 13.5 billion in the supervisory data. The two sources differ by ILS 1.6 billion on average in 2021 and diverge further after the Bank of Israel's 2022 revision of bank holdings, so we use the supervisory data only for 2019–2021.

[4] In the earlier report of the holder statistics, nonresident holdings are higher from September 2022 to December 2023 (Section IA.1.4). The November 2022 peak is ILS 2.9 billion higher, and foreign holdings rise by ILS 1.4 billion instead of ILS 0.9 billion from September to December 2022.

ILS 11.8 billion, of which ILS 5.2 billion in a bill's month of issue or reopening, ILS 6.3 billion of outstanding bills, and ILS 0.3 billion in a bill's month of maturity. The ILS 12.1 billion of net sales of outstanding bills on all venues includes ILS 6.3 billion of sales on the exchange. Allocating the correction line across bills month by month, with each allocation at most the positive position in a bill, leaves the aggregate fall, and the difference between that fall and foreign investors' sales on the exchange, unchanged.

IA.1.7 Domestic holders after the foreign peak

The bills that foreign investors released went to domestic funds, which held the bills in place of cash and deposits. Section 1.4 of the paper shows that mutual funds and long-term institutional investors replaced foreign investors as holders of Makam. The holder statistics show which holders added bills, and fund portfolios show how mutual funds financed the increase.

From the November 2022 foreign peak through November 2024, domestic holdings rose by ILS 119.5 billion, the ILS 73.3 billion fall in foreign holdings plus the ILS 46.2 billion rise in Makam outstanding (Table IA.3, Panel A). Money-market and other mutual funds together added ILS 88.6 billion, and banks raised their holdings temporarily in 2023 and ended close to their level at the peak. Over the exit, mutual funds acquired ILS 451.1 billion of new bills against ILS 501.3 billion of their bills that matured and bought ILS 132.5 billion of outstanding bills on net. Mutual funds held short bills in place of cash. Mutual funds held 69% of the value of bills within three months of maturity in 2024, against 38% during the accumulation.

For a continuing fund i, let $H_{i,t}$ denote Makam holdings, $A_{i,t}$ assets under management, and $w_{i,t}$ the fraction of assets held in Makam, so that $H_{i,t} = A_{i,t}w_{i,t}$. The change in holdings is

$$\Delta H_{i,t} = A_{i,t-1}\Delta w_{i,t} + w_{i,t-1}\Delta A_{i,t} + \Delta A_{i,t}\Delta w_{i,t}. \tag{IA.2}$$

Weight changes and fund growth both contribute to the increase from November 2022 to December 2023, and fund entry and exit add the rest (Panel B). Passive and index funds account for ILS 34.7 billion of the increase of ILS 72.2 billion.

Funds that held more cash before the exit raised their Makam weights more (Panel C). Across continuing funds, each percentage point of initial cash weight raised the Makam weight from November 2022 to December 2023 by 0.583 percentage points ($t = 28.0$), against 0.111 and 0.098 in the two preceding years. With fund-type effects the slope is 0.586 ($t = 27.7$), across 16 management companies. Funds with more cash reduced their cash weights more, and about 86% of the additional fall in cash weights went into Makam. Across continuing

funds, cash and deposits account for 73% of the fall in other portfolio weights that offsets a rise of one percentage point in the Makam weight. Money-market and passive funds reduced cash weights, while active bond funds reduced other government and corporate-bond weights. Holdings of corporate bonds, measured in units of each security, fell more during the exit for the bonds held more heavily by active bond funds that increased their Makam holdings ($t = -3.2$). Equities show no such relation ($t = 1.0$).

IA.1.8 Funds that track foreign stock indices

Israeli mutual funds that track foreign stock indices hold few foreign stocks. They obtain the return of the index through futures and swaps and keep most of their assets in short-term shekel instruments, which also serve as collateral for the derivatives. The fund-level portfolios show the pattern directly. We classify a fund as tracking a foreign stock index when its name identifies it as an index fund and names a foreign index or region, such as the S&P 500 or the NASDAQ 100. In December 2021 the 330 funds so classified managed ILS 43.4 billion. Makam made up 42% of their assets, bank deposits and cash 46%, and foreign stocks and exchange-traded funds held directly 4%. Among the 46 funds with more than ILS 200 million of assets, the median fund held 41% of its assets in Makam. From May 2020 to December 2021 the Makam share of the group's assets stayed between 41% and 53%, while the Makam yield fell below zero in some weeks. In December 2021 these funds held 49% of the Makam in the fund-level portfolios.

Table IA.3: Domestic holders after the foreign peak

Panel A. Change in holdings by sector, November 2022–November 2024 (ILS billion)

Money-market funds	34.8
Other mutual funds	53.8
Retirement savings funds	23.5
Pension funds	7.8
Banks	−1.1
Other sectors and reconciliation residual	+0.7
Total	119.5
Banks, temporary rise to the 2023 maximum	84.4

Panel B. Increase in mutual-fund holdings, November 2022–December 2023 (ILS billion)

Change in Makam weight, continuing funds	27.4
Asset growth, continuing funds	24.9
Asset growth × change in Makam weight	17.6
Entry of new funds	3.4
Exit of funds	−1.0
Total	72.2
money-market funds	28.7
passive and index funds	34.7
bond funds other than index funds	0.8
other funds	8.0

Panel C. Change in Makam weight per percentage point of initial cash and deposit weight

	November 2020–November 2021	November 2021–November 2022	November 2022–December 2023
Initial cash and deposit weight	0.111	0.098	0.583
	(1.3)	(0.7)	(28.0)
R^2	0.013	0.011	0.559
Funds	1944	2095	2066

Notes: Panel A uses the holder statistics, and Panels B and C use mutual-fund portfolios. Panel A's total equals the fall in foreign holdings plus the rise in Makam outstanding, and its last row is not part of the total. Panel B splits the increase among continuing funds into the terms of equation (IA.2) and allocates the total across fund types classified by name. Panel C regresses the change in a continuing fund's Makam weight on its cash and deposit weight at the start of each window. Entries are rounded separately. t-statistics clustered by management company are in parentheses. Sources: Bank of Israel and Praedicta.

IA.2 Foreign ownership and foreign-rate pass-through

Section 2 of the paper shows that the response of the Makam yield to the foreign funding rate rose with foreign ownership. This section reports the period estimates and the rate coefficients and interactions of the ownership regression, and then asks whether the relation survives other samples, maturities, methods of inference, bank holdings, hedging-market conditions, and dollar rates.

IA.2.1 Pass-through by period and the full ownership regression

Table IA.4 reports estimates of equation (2) of the paper by period. A 100-basis-point rise in the foreign funding rate went with a rise of 7 basis points in the three-month Makam yield from 2018 to 2019, when foreign investors held 9% of Makam, and 28 basis points from January to September 2022, when they held 46%. The ownership regression on the weeks from 2018 onward (Table 3 of the paper, column (2)), evaluated at each period's mean share, gives −2 and 27 basis points for the same two periods. Table IA.5 reports the rate coefficients and interactions of the ownership regression of Table 3. Column 3 of Table 3 of the paper adds the bank share and its interactions with both rate changes. The lagged bank share and the lagged foreign share have a correlation of −0.80. The column evaluates foreign-rate pass-through at the period means of both shares, a bank share of 36% from 2018 to 2019 and 4% from January to September 2022. Table IA.6 reports the estimates plotted in Figure 3 of the paper.

IA.2.2 Variants of the ownership regression

Table IA.7 collects the variants. Each row reports the change in foreign-rate pass-through per 10 percentage points of foreign ownership, the ownership interaction γ_F, which the paper evaluates at foreign shares of 9% and 46%. In the baseline the coefficient is 7.4 basis points, so the rise in ownership adds about 27 basis points of pass-through.

Sample and inference. The ownership interaction stays positive when single years are omitted and when errors are clustered by calendar year. With errors clustered by calendar year, the estimate is 7.4, and a wild cluster bootstrap with the null imposed gives a p-value of 0.003. The foreign share is demeaned within each sample. The bootstrap assigns one Rademacher weight to the residuals of each calendar year, refits the regression, and uses one of each pair of weight patterns that differ only by the reversal of every sign (Roodman et al. (2019)). Table IA.20, Panel A, replaces the foreign share with the same series shifted in time

Table IA.4: Foreign-rate and TELBOR pass-through by period (bp per 100 bp)

	2018–2019	Jan–Jun 2020	Jul 2020–Dec 2021	Jan–Sep 2022	Oct–Dec 2022	2023	Jan–Sep 2024
Foreign share (%)	9	16	28	46	45	15	3
Foreign-rate pass-through	7	−5**	16***	28**	15	0	12*
	(1.4)	(−2.5)	(4.1)	(2.4)	(0.9)	(−0.1)	(1.9)
Fitted from the ownership regression	−2	3	13	27	27	3	−6
TELBOR pass-through	59***	73	−222	60*	−22	71***	154*
	(2.9)	(1.5)	(−0.5)	(1.9)	(−0.4)	(6.9)	(1.9)
SD of TELBOR change (bp)	1.3	3.2	0.2	7.0	5.0	7.6	2.3
p-value, coefficients sum to 100	0.044	0.513	0.481	0.694	0.134	0.035	0.436
Weeks	103	25	77	39	14	52	39

Notes: This table reports estimates of equation (2) of the paper with an intercept and slopes for each period. The fitted row evaluates the ownership regression on the weeks from 2018 onward, equation (3) of the paper as in column (2) of Table 3 of the paper, at each period's mean lagged foreign share. Three weeks that follow a week with no common day of the three rates are not in the ownership regression. Newey–West t-statistics with 4 lags are in parentheses. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

Table IA.5: The ownership regression: rate coefficients and interactions (bp per 100 bp)

Panel A. Three-month yield

	(1) 2010–24	(2) 2018–24	(3) 2010–24, excluding Mar–Jun 2020	(4) 2010–24, bank share added	(5) 2010–12, first episode, monthly
θ_F, foreign funding rate	2	6**	3	3	−2
	(0.7)	(2.2)	(1.1)	(1.2)	(−0.8)
θ_D, TELBOR	71***	66***	72***	72***	78***
	(10.8)	(4.9)	(10.8)	(10.9)	(8.4)
γ_F, foreign funding rate	7.4***	7.8***	6.9***	9.0***	6.8**
× foreign share	(3.3)	(2.9)	(3.0)	(2.7)	(2.3)
γ_D, TELBOR	−8.1	−4.1	−8.1	−1.1	10.1
× foreign share	(−1.5)	(−0.4)	(−1.5)	(−0.1)	(1.3)
Foreign funding rate				2.9	
× bank share				(0.9)	
TELBOR				12.0	
× bank share				(0.9)	
Observations	747	346	732	747	29

Panel B. Yields at 2, 4.5, 7.5, and 11 months, with maturity and week effects

	(6) 2010–24	(7) 2018–24	(8) 2010–24, bank share added
θ_F, foreign funding rate	7**	14***	10***
	(2.0)	(3.6)	(2.8)
θ_D, TELBOR	62***	63***	55***
	(6.7)	(5.5)	(5.2)
γ_F, foreign funding rate	9.3***	8.5***	12.1***
× foreign share	(3.9)	(3.0)	(3.9)
γ_D, TELBOR	−15.9***	−15.6**	−22.1**
× foreign share	(−2.9)	(−2.3)	(−2.4)
Foreign funding rate			5.6*
× bank share			(1.8)
TELBOR			−12.6
× bank share			(−1.0)
Observations	2480	1124	2480

Notes: This table reports estimates of equation (3) of the paper. Columns 1, 2, 4, 6, and 5 are columns 1 to 5 of Table 3 of the paper. Interactions are in basis points per 100 basis points per 10 percentage points of the share, and shares are measured at the end of the previous month and demeaned. Panel B matches TELBOR and the foreign funding rate to the maturity of each yield. Newey–West t-statistics with 4 lags (2 in column 5) are in parentheses, and Panel B reports Driscoll–Kraay t-statistics with 4 lags. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

Table IA.6: Foreign-rate pass-through by foreign share (bp per 100 bp)

	2018–2024					2010–2012	
Foreign share (%)	0–10	10–20	20–30	30–40	Above 40	0–30	Above 30
Foreign-rate pass-through	7.1	−1.3	4.0	26.3***	26.5***	−1.8	33.6***
	(1.5)	(−0.5)	(0.7)	(5.2)	(3.1)	(−0.3)	(3.7)
Weeks	115	95	40	39	57	127	18

Notes: Each column estimates equation (2) of the paper on the weeks in which the foreign share of Makam at the end of the previous month lies in the stated range, with its own intercept, coefficient on TELBOR, and foreign-rate pass-through. The dependent variable is the weekly change in the three-month Makam yield. Newey–West t-statistics with 4 lags are in parentheses. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

by 12 months or more. The actual series has a larger t-statistic than each of the 154 shifted series in Israel and each of the 53 in Japan, and than 166 of the 169 in Mexico. Omitting one year at a time leaves the estimate between 4.6 and 8.0.

Maturities and observation weeks. Pooling the three- to twelve-month yields with maturity and week effects gives 10.0 basis points per 10 percentage points ($t = 2.6$). Nine-month forward points and dollar rates are interpolated between six and twelve months. In the week-effects regression of column 4 of Table 3 of the paper, the ownership interaction is 9.3 on all available weeks, 3.6 ($t = 1.6$) on the 395 weeks shared with the five-maturity balanced panel, and 10.6 without weeks that contain a quarter-end.

Bank holdings. The step in pass-through at a foreign share of 30% in Figure 3 of the paper coincides with banks' exit from Makam. From 2018 to 2024, banks held 4% of Makam in the weeks above that share and 25% in the weeks below. The variants with bank holdings separate the relation of foreign-rate pass-through with bank holdings from its relation with foreign ownership. From 2010 to 2012 banks still held Makam in the weeks of high pass-through. The ownership interaction is 9.0 with bank-share terms ($t = 2.7$) and 8.9 with bank holdings in shekels ($t = 3.4$). The ownership interaction is positive in the weeks in which banks held more than each of three cutoff shares of Makam.

Hedging market and dollar rates. Outstanding dollar hedges are the dollar amount that domestic institutions have sold forward and not yet delivered, at the end of the previous month. Scheduled maturities count only contracts outstanding before both weeks of the weekly change, written at least 21 days before maturity. The baseline dollar rate is the

LSEG composite three-month dollar overnight-index swap (LSEG series USD3MOIS=) plus 26.161 basis points, the fixed spread ISDA set to replace three-month dollar LIBOR, added so that the dollar rate approximates the level of unsecured bank funding (footnote 5 of the paper). Without the spread, the weekly change in the foreign funding rate differs from the baseline by at most 0.07 basis points, against a standard deviation of 14.7 basis points. The broker-quoted rate is the ICAP three-month fed funds overnight-index swap (LSEG series USD3MOIS=ICAP), quoted on 99% of weekdays through the LIBOR-to-SOFR transition. The ownership interaction is 7.2 with outstanding dollar hedges and their interactions added, 9.2 with scheduled maturities, 7.4 without the spread, and 7.1 with the broker-quoted dollar rate.

IA.2.3 Funds that track foreign stock indices and the components of the foreign funding rate

Two further checks concern domestic funds and the components of the foreign funding rate. Funds that track foreign stock indices expanded their Makam holdings during the accumulation (Section 1.4 of the paper), so we add their share of Makam to the ownership regression. On the 289 weeks with observed holdings of these funds, adding their lagged share and the lagged bank share, each with its interactions with both rate changes, leaves the ownership interaction at 14.5 ($t = 1.7$). The lagged share of these funds has a correlation of $+0.85$ with the lagged foreign share and -0.92 with the lagged bank share, and the foreign share keeps 45% of its standard deviation after a linear projection on both shares.

The foreign funding rate combines the dollar rate and the forward premium. We interact each component separately with the foreign share. The forward premium gives 7.2 ($t = 3.4$), and the dollar rate gives 2.7 ($t = 0.2$).

IA.2.4 The level of interest rates

Three-month TELBOR averaged 1.02% from January to September 2022 and 4.61% in 2023, when foreign investors left (Table 1 of the paper). Table IA.8 separates the relation of foreign-rate pass-through with the level of rates from its relation with foreign ownership. The table adds the previous week's three-month TELBOR, demeaned, and its interactions with both rate changes to equation (3) of the paper. The ownership interaction is 7.4 ($t = 3.2$) against 7.4 without the level terms, and 7.8 ($t = 2.9$) from 2018. The interaction of the foreign funding rate with the level of TELBOR is close to zero in every column, including without the foreign-share terms. The lagged foreign share and the lagged level of TELBOR have a

Table IA.7: Variants of the ownership regression: change in foreign-rate pass-through per 10 percentage points of foreign ownership (bp per 100 bp)

	Estimate	t	Weeks
Panel A. Sample and inference, three-month yield			
Baseline, January 2010–September 2024	7.4***	3.3	747
January 2018–September 2024	7.8***	2.9	346
Excluding March–June 2020	6.9***	3.0	732
Errors clustered by year, wild bootstrap p in brackets	7.4***	[0.003]	747
Linear time trend and its interactions with both rate changes	7.3***	3.2	747
January 2018–September 2024	7.2***	2.6	346
Omitting 2022, the lowest estimate with one year omitted	4.6*	1.8	694
Omitting 2024, the highest estimate with one year omitted	8.0***	3.4	708
Panel B. Maturity and observation weeks			
Yields at 3, 6, 9, and 12 months, maturity and week effects	10.0***	2.6	769
Yields at 2, 4.5, 7.5, and 11 months, week effects, all weeks	9.3***	3.9	620
weeks shared with the five-maturity panel	3.6	1.6	395
excluding quarter-end weeks	10.6***	4.2	569
Panel C. Bank holdings			
Bank-share terms, 2010–2024	9.0***	2.7	747
Bank-share terms, 2018–2024	8.1**	2.3	346
Bank holdings in ILS 10 billion, 2010–2024	8.9***	3.4	747
Weeks with bank share above 3.0%	9.4***	2.7	70
at or below 3.0%	2.1	0.3	64
Weeks with bank share above 5.0%	5.9**	2.1	216
at or below 5.0%	5.1*	1.7	91
Weeks with bank share above 7.5%	8.8***	4.7	206
at or below 7.5%	1.8	0.7	100
Panel D. Hedging market, dollar rates, and funds that track foreign stock indices			
Outstanding dollar hedges, 2010–2024	7.2***	2.8	747
Outstanding dollar hedges, 2018–2024	7.8*	1.8	346
Scheduled maturities, 2019–2022	9.2***	2.6	185
Dollar rate without the 26.161 bp spread	7.4***	3.3	747
Broker-quoted dollar rate	7.1***	3.1	747
Share of funds that track foreign stock indices and bank share, Feb 2017–Sep 2022	14.5*	1.7	289
Dollar rate in the foreign funding rate	2.7	0.2	747
Forward premium in the foreign funding rate	7.2***	3.4	747

Notes: Each row changes one element of the ownership regression, equation (3) of the paper. Samples are weekly from January 2010 to September 2024 unless the row states otherwise, and from January 2018 for the rows that split weeks by bank share. Added variables enter demeaned, alone and interacted with both rate changes. The rows by bank share give each group of weeks its own intercept, rate slopes, and ownership terms, on the weeks in the range of foreign shares common to both groups. Maturity rows use TELBOR and the foreign funding rate at the maturity of each yield. Outstanding dollar hedges are the dollars that domestic institutions have sold forward and not yet delivered, and scheduled maturities count hedges written at least 21 days before maturity and outstanding before both weeks of the yield change. t-statistics are Newey–West with 4 lags, Driscoll–Kraay with 4 lags for pooled maturities, and clustered by calendar year in the clustered row, whose p-value comes from a wild cluster bootstrap with the null imposed. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

correlation of $+0.12$ from 2010 to 2024 and -0.19 from 2018, because in both episodes rates were highest after foreign investors had left.

Table IA.8: The ownership regression with the level of TELBOR

	2010–2024			2018–2024		
	(1)	(2)	(3)	(4)	(5)	(6)
θ_F, foreign funding rate	2	1	9**	6**	6**	11**
	(0.7)	(0.6)	(2.3)	(2.2)	(2.2)	(2.2)
θ_D, TELBOR	71***	74***	67***	66***	59*	60***
	(10.8)	(8.1)	(6.2)	(4.9)	(1.9)	(2.9)
γ_F, foreign funding rate	7.4***	7.4***		7.8***	7.8***	
× foreign share	(3.3)	(3.2)		(2.9)	(2.9)	
γ_D, TELBOR	−8.1	−8.2		−4.1	−3.3	
× foreign share	(−1.5)	(−1.5)		(−0.4)	(−0.3)	
Foreign funding rate		0.4	1.1		1.0	0.9
× lagged level of TELBOR		(0.2)	(0.6)		(0.5)	(0.4)
TELBOR		−2.3	−2.7		1.8	1.2
× lagged level of TELBOR		(−0.4)	(−0.4)		(0.2)	(0.1)
Foreign-share terms	Yes	Yes	No	Yes	Yes	No
TELBOR-level terms	No	Yes	Yes	No	Yes	Yes
Weeks	747	747	747	346	346	346

Notes: This table reports estimates of equation (3) of the paper for the weekly change in the three-month Makam yield, through September 2024. The TELBOR-level terms are the previous week's mean three-month TELBOR, in percent and demeaned, and its interactions with the changes in TELBOR and the foreign funding rate. θ_F and θ_D are in basis points per 100 basis points, and the interactions are in the same units per 10 percentage points of foreign ownership or per percentage point of TELBOR. Newey–West t-statistics with 4 lags are in parentheses. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

IA.3 The 2011 tax change

Section 4.2 of the paper shows that Makam yields rose relative to the yields of exempt bonds after the 2011 tax change moved the bills from foreign holders to banks. Table IA.9 asks whether the comparison depends on the maturity curve, the maturity window, or the start of the sample. In the baseline, Makam yields rose by 12.8 basis points relative to the yields of exempt bonds, and the estimate stays between 7.5 and 22.3 basis points across the alternatives. Leaving out one exempt bond at a time, the estimate of row (1) ranges from 10.7 to 16.6 basis points. Every specification measures remaining maturity in exact calendar days. Figure IA.3 plots the yields of Makam and of exempt bonds against TELBOR. The rise in the relative yield after implementation comes from Makam.

Table IA.9: Yields on affected and exempt securities after the 2011 tax change: alternative specifications (bp)

	Maturity curve	Months to maturity	Sample start	Affected × post	t	Bootstrap p-value	Affected / exempt	Security-months
(1)	Month-specific linear	1–24	Jul 2009	12.8***	3.8	0.015	47 / 7	515
(2)	Month-specific quadratic	1–24	Jul 2009	10.9***	4.9	0.019	47 / 7	515
(3)	Common linear	1–24	Jul 2009	22.3***	4.1	0.002	47 / 7	515
(4)	Month-specific linear	1–12	Jul 2009	13.9***	4.1	0.002	47 / 5	458
(5)	Month-specific linear	1–18	Jul 2009	10.9***	4.4	0.010	47 / 6	484
(6)	Month-specific linear	3–24	Jul 2009	7.5***	5.4	0.007	45 / 7	442
(7)	Month-specific linear	1–24	Apr 2010	12.9***	3.7	0.016	38 / 6	395
(8)	Month-specific linear	1–24	Jul 2010	12.6***	3.6	0.015	35 / 6	353

Notes: This table reports estimates of equation (16) of the paper, a regression of each security's monthly mean yield on an indicator for Makam bills after 7 July 2011, with security and calendar-month effects, through June 2012. A month-specific curve interacts remaining maturity, and its square in the quadratic row, with month indicators. t-statistics are clustered by security and month, and bootstrap p-values come from a wild cluster bootstrap by security with the null imposed and 200,000 draws. Sources: Bank of Israel and the Tel Aviv Stock Exchange. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

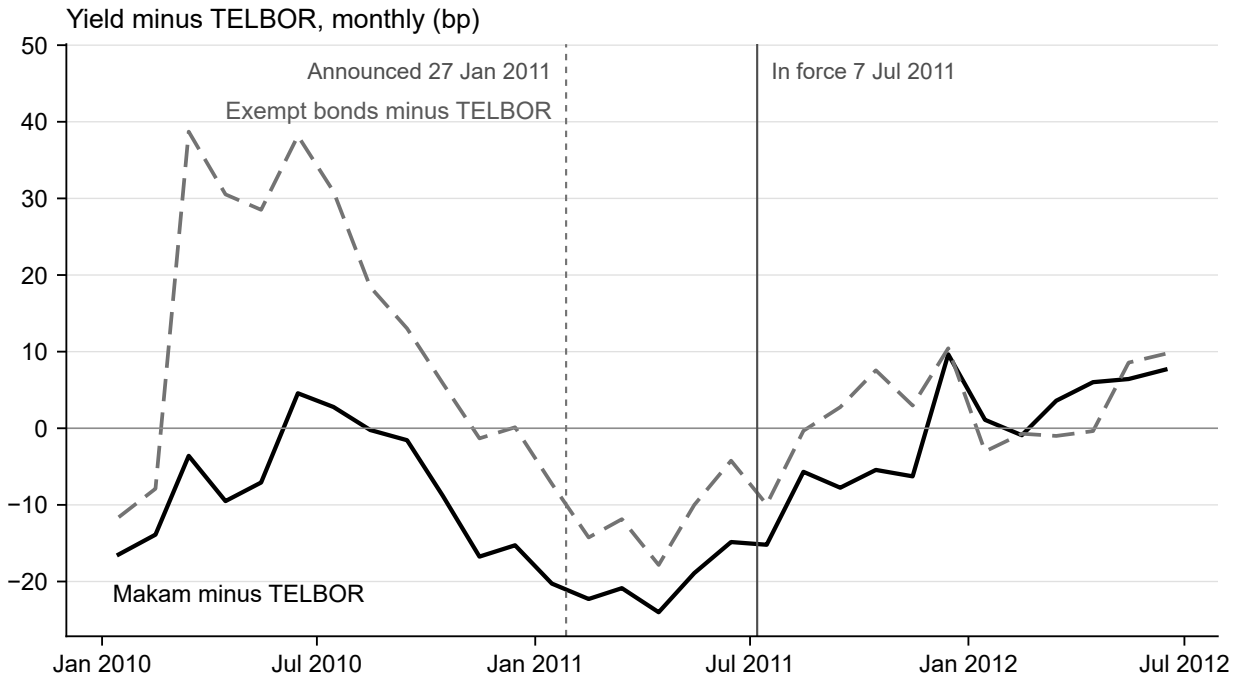


Figure IA.3: **Yields of Makam and of exempt bonds minus TELBOR, January 2010 to June 2012.** The sample is the 40 Makam bills and the 6 exempt bonds with 1 to 24 months left to maturity. Each line is the mean across securities of each security's monthly mean yield minus TELBOR at its remaining maturity, with 12-month TELBOR for securities with more than 12 months left. The data come from the Bank of Israel and the Tel Aviv Stock Exchange.

IA.4 Foreign demand and its price effects

Sections 2.3, 4.1, and 5.4 of the paper show that foreign investors respond to the hedged spread, that their purchases follow the calendar of domestic institutions' maturing currency hedges, that the hedge calendar moves the Makam yield through the foreign funding rate and foreign purchases, and that foreign buying pauses at year-end. This section reports the regressions behind each statement and the construction and variants of the hedge-calendar test.

IA.4.1 What foreign investors respond to

Adding lagged TELBOR to the predictive regression of Table 4 of the paper leaves the coefficient on the lagged foreign funding rate at ILS −6.6 billion per 100 basis points ($t = -4.2$), against −6.7 without it (Table IA.10, Panel A). The coefficient on the lagged Makam yield falls to 0.2 ($t = 0.1$) because the Makam yield and TELBOR move together, with a correlation of 0.82 within periods, so the regression cannot divide the response to the shekel rate between them. The two coefficients sum to 3.5 ($t = 2.3$), close to the 4.0 on the Makam yield alone.

The domestic groups are observed only on the exchange, so Panel B compares foreign investors with each domestic group on the exchange alone. On the exchange, foreign purchases shift toward buckets with a higher hedged spread by 0.77 ($t = 1.9$), and the pairwise differences from each domestic group appear in Panel B.

Domestic institutions renew their maturing hedges (Panel C). Each dollar of hedges scheduled to mature in a week comes with 84 cents of new FX swaps in which domestic institutions buy dollars in the near leg and sell dollars forward, in that week or the week before ($t = 10.5$), and maturities scheduled 14 weeks ahead predict no rollover. Each renewal is a new forward sale of dollars, the opposite side of the forward purchase that a hedged foreign buyer makes.

IA.4.2 Deviations from covered interest parity in Israel, the euro area, and Japan

A bank that funds in dollars compares the deviations from covered interest parity across currencies. Table IA.11 and Figure IA.4 compare TELBOR minus the foreign funding rate with the same deviation in euros and yen. For each currency, the deviation is the three-month benchmark rate in that currency, TELBOR in Israel and the overnight-index-swap rate in the euro area and Japan, minus the foreign funding rate in that currency, constructed

Table IA.10: Foreign demand: lagged benchmarks, maturity choice, and hedge rollovers

Panel A. Monthly change in foreign holdings (ILS bn per 100 bp of a lagged rate)

	Without lagged TELBOR	With lagged TELBOR
Lagged Makam yield	4.0**	0.2
	(2.4)	(0.1)
Lagged foreign funding rate	−6.7***	−6.6***
	(−3.9)	(−4.2)
Lagged TELBOR		3.3
		(1.6)

Panel B. Exchange purchases by maturity bucket and the hedged spread (pp per bp)

	Slope	Foreign minus group
Foreign investors	0.77*	
	(1.9)	
Banks	1.14***	−0.38
	(3.2)	(−0.9)
Mutual funds	−0.12	0.89**
	(−0.7)	(2.1)
Long-term institutional investors	−0.04	0.81**
	(−0.3)	(2.1)
ETFs and market makers	−0.29	1.06**
	(−1.4)	(2.4)

Panel C. Hedge rollovers in weeks $w-1$ and w (USD bn per USD bn)

	2019–2022	Jan 2019–May 2020	Jun 2020–Aug 2022
Hedges maturing in week w	0.84***	0.96***	0.83***
	(10.5)	(10.6)	(8.8)
Hedges maturing 14 weeks ahead	+0.03	+0.20*	−0.04
	(0.4)	(1.8)	(−0.4)
Weeks	191	75	116

Notes: Panel A repeats the regression of Table 4 of the paper on the same 53 months, with period intercepts, lagged foreign holdings, and lagged outstanding dollar hedges. Panel B regresses each group's share of its monthly exchange purchases in a remaining-maturity bucket on the bucket's hedged spread in the previous month, with month and bucket effects, from February 2018 to August 2022, and compares foreign investors with each group in stacked regressions. Panel C regresses domestic institutions' rollovers on the hedges scheduled to mature, with indicators for redemption, tender, month-end, and quarter-end weeks. Rollovers are new FX swaps in which the institution buys dollars in the near leg and sells dollars forward at least 21 days later, summed over the week of maturity and the week before. t-statistics are Newey–West within periods in Panel A, clustered by month in Panel B, and Newey–West with 4 lags in Panel C. Sources: Bank of Israel, TASE Smart Money, and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

as in equation (1) of the paper with the same dollar rate and spread.

From 2018 to 2019 Israel's deviation was close to the deviations in euros and yen, and foreign investors held 9% of Makam on average. From July 2020 to December 2021 the deviations in euros and yen fell to 0 and 4 basis points, Israel's stayed at 30, and the foreign share averaged 28%. From January 2010 to June 2011, when foreign investors first entered, Israel's deviation of 105 basis points also exceeded those in euros and yen. Across the 24 quarters from 2017 to 2022, the foreign share of Makam has a correlation of 0.85 with Israel's deviation minus the larger of the deviations in euros and yen, and of 0.66 with Israel's deviation alone. From 2010Q1 to 2024Q3 the two correlations are 0.67 and 0.62.

Table IA.11: Three-month deviations from covered interest parity (basis points)

	Israel	Euro area	Japan	Foreign share of Makam (%)
Jan 2010–Jun 2011	105	−4	−1	22
2018–2019	27	22	35	9
Jul 2020–Dec 2021	30	0	4	28
Jan–Sep 2022	95	1	8	46
2023	85	1	22	15
Jan–Sep 2024	57	−10	12	3

Notes: Entries are means over each period of weekly means of daily data. Each deviation is the three-month benchmark rate minus the foreign funding rate in that currency, the rate at which an investor that borrows dollars at the three-month dollar overnight-index-swap rate plus 26.161 basis points obtains the currency through a three-month forward. The benchmark rates are three-month TELBOR in Israel and three-month overnight-index-swap rates on EONIA and its successor, the euro short-term rate, in the euro area and on the yen overnight rate in Japan. Sources: Bank of Israel and LSEG.

IA.4.3 Foreign shares of other Israeli markets

From January 2017 to August 2022 foreign ownership rose most in government debt with up to one year to maturity (Figure IA.5). The nonresident share of government debt with up to one year to maturity rose from 4% to 41%, and peaked at 46% in June 2022. Their share of government bonds with more than one year to maturity rose from 10% to 16%, their share of Israeli equities from 16% to 20%, and their share of corporate bonds stayed at or below 1%.

IA.4.4 Israel's credit risk and the foreign exit

Table IA.12 compares the foreign exit from Makam with Israel's credit risk and with foreign trading in government bonds. Credit risk is measured by the daily closing five-year credit

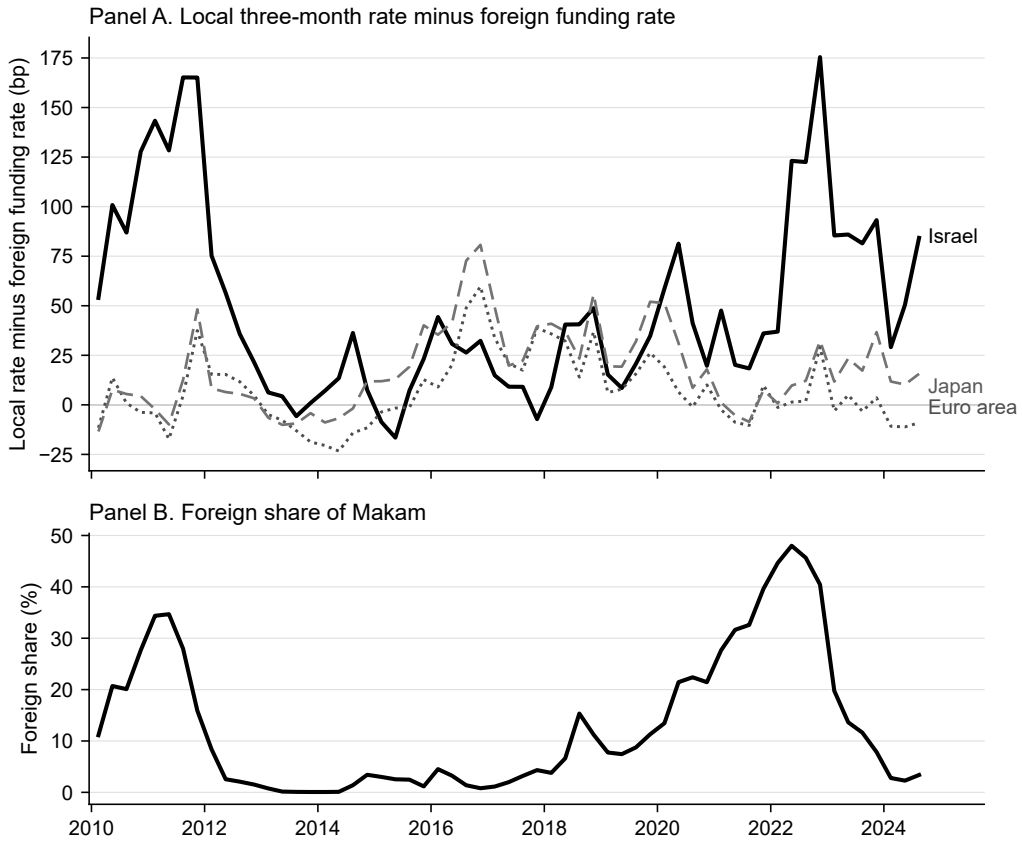


Figure IA.4: **Deviations from covered interest parity and the foreign share of Makam, 2010Q1 to 2024Q3.** Both panels plot quarterly means. Each deviation is the three-month benchmark rate minus the foreign funding rate in that currency, constructed as in Table IA.11. The data come from the Bank of Israel and LSEG.

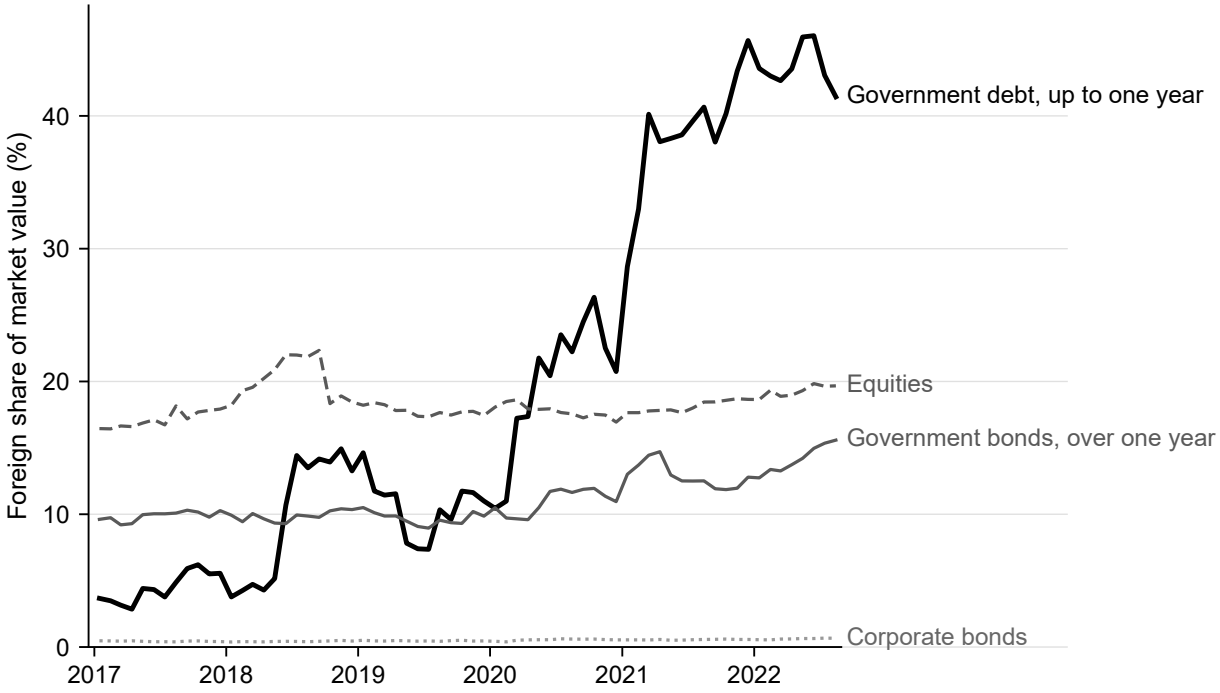


Figure IA.5: **Foreign shares of Israeli securities markets, January 2017 to August 2022.** Shares are monthly and at market value. Government debt with up to one year to maturity comprises Makam and government bonds with up to one year remaining, and government bonds over one year are the remaining government bonds. The data come from the Bank of Israel.

default swap spread on Israel's dollar government debt, from ICE through Bloomberg as published by the Bank of Israel. From September–October 2022 to September 2023 foreign holdings of Makam fell from ILS 72.6 billion to ILS 37.0 billion and the foreign share from 46% to 12%, while the credit default swap spread rose from 40 to 52 basis points.

Panel B reports foreign net purchases of government securities on the Tel Aviv Stock Exchange by remaining maturity. As foreign holdings of Makam fell, foreign investors bought nominal bonds with less than two years to maturity. From December 2022 to September 2023 their net purchases of short bonds on the exchange came to ILS 16.8 billion, and their net sales of nominal bonds with more than five years to maturity came to ILS 0.5 billion. The nonresident share of tradable government bonds rose from 12.2% to 13.9%.

In October 2023, after the outbreak of war, the credit default swap spread rose by 79 basis points. From then to April–June 2024 foreign holdings of Makam fell to ILS 5.7 billion and the nonresident share of government bonds to 8.3%. On the exchange foreign investors sold nominal bonds of every maturity from October 2023 to March 2024, including ILS 4.2 billion of long bonds. Across the 51 months from June 2020 to August 2024, the monthly change in the spread has a correlation of -0.13 with the change in the foreign share of Makam, -0.05 with foreign purchases of Makam relative to foreign holdings in the previous month, and 0.01 with the change in the nonresident share of government bonds.

IA.4.5 The hedge calendar

Section 4.1 of the paper uses the hedge calendar, the dollar amount of domestic institutions' currency hedges scheduled to mature in a week, as an instrument for the foreign funding rate and for the change in foreign holdings. This subsection defines the hedge calendar, lists the controls, and describes the inference. Section IA.4.6 reports the checks on the estimates.

Design. The hedge calendar of week w is the reported USD notional of domestic institutions' forward sales of dollars, including FX-swap far legs, scheduled to mature in week w and written at least 90 days before the start of week w, from the Bank of Israel's transaction-level foreign-exchange data. Changes in yields and rates run from week $w-3$ to week w. Foreign acquisitions are tender and secondary purchases minus secondary sales, before redemptions, over weeks $w-2$ to w, and the change in foreign holdings is foreign acquisitions minus foreign redemptions over the same weeks. The baseline controls are the hedge calendar 13 weeks ahead, built from contracts written before week $w-3$ with the same minimum age, foreign redemptions in week w, indicators for tenders, month-ends, and quarter-ends, period intercepts, a quadratic trend, and month-of-year and week-of-month effects. They also include foreign and bank Makam holdings at the end of the month before week $w-2$, outstanding

Table IA.12: Credit risk, foreign holdings, and foreign trading, 2022 to 2024

Panel A. Credit risk and foreign holdings

	Credit default swap (bp)	Foreign share of Makam (%)	Foreign Makam (ILS bn)	Bond share (%)
Sep–Oct 2022	40	46	72.6	12.2
Dec 2022–Mar 2023	49	23	54.6	12.6
Sep 2023	52	12	37.0	13.9
Oct–Dec 2023	116	8	24.9	12.4
Apr–Jun 2024	129	2	5.7	8.3

Panel B. Foreign net purchases on the exchange (ILS bn)

		Nominal bonds			CPI-linked
	Makam	Short	Medium	Long	bonds
Sep–Oct 2022	13.6	6.2	0.0	−0.4	0.5
Dec 2022–Mar 2023	−5.3	10.2	0.5	0.3	−0.1
Apr–Sep 2023	1.0	6.6	1.3	−0.8	−0.7
Oct 2023–Mar 2024	−6.1	−2.6	−2.3	−4.2	−1.0

Notes: Panel A reports means of monthly values over each period. The credit default swap spread is the five-year spread on Israel's dollar government debt, the monthly mean of daily closes. Foreign Makam is nonresident holdings of Makam at market value, and the bond share is the nonresident share of tradable government bonds at market value. Panel B sums foreign net purchases on the Tel Aviv Stock Exchange over each period, at market value and without auctions. Short, medium, and long nominal bonds are fixed-rate bonds with less than two, two to five, and more than five years to maturity on the trade date. Sources: Bank of Israel, ICE through Bloomberg, and TASE Smart Money.

dollar hedges at the end of week $w-3$, the weekly changes in the three-month Makam yield, foreign funding rate, TELBOR, USD/ILS exchange rate, and dollar interest rate in week $w-3$, Makam issuance and redemptions over weeks $w-2$ and $w-1$, and an indicator for 2022. Every regression adds the change in TELBOR at the maturity of the yield from week $w-3$ to week w. The sample is the 234 weeks from the week ending 25 January 2018 to the week ending 25 August 2022. Of the 240 weeks between the two dates, 6 lack the lagged change in the three-month Makam yield. The paper splits the weeks at a foreign share of Makam of 20% at the last month-end before week $w-3$. One regression interacts the hedge calendar and every control with an indicator for the weeks of high foreign ownership. One Newey–West covariance matrix with 8 lags covers the coefficients of both groups of weeks and both maturities, and the t-statistic of each difference between the two groups of weeks comes from that matrix. Anderson–Rubin sets invert a HAC test with 8 Newey–West lags that respect gaps in the weekly series.

The common price impact. The three- and six-month regressions share their weeks, hedge calendar, and change in foreign holdings. The common price impact stacks the two regressions, each with its own controls, with one price impact for both yields. The Newey–West covariance matrix, with 8 lags, allows for dependence between the two maturities within each week and across weeks. The Anderson–Rubin set inverts the test that the hedge calendar has a zero common coefficient on the yield change plus the change in foreign holdings times the hypothesized fall in the Makam yield per ILS billion added to foreign holdings.

Domestic holders and issuance. The exclusion restriction fails if weeks with a large hedge calendar shift domestic demand or issuance directly. Over all 234 weeks, with common coefficients, the baseline controls of the six-month equation, and outcomes over weeks $w-2$ to w, long-term institutional investors (pension funds, retirement savings funds, and insurers) sell ILS 0.27 billion of Makam on the exchange per USD billion in the hedge calendar ($t=-3.7$), and foreign investors buy ILS 0.35 billion ($t=2.6$). Mutual funds sell ILS 0.30 billion on the exchange ($t=-3.8$), and banks buy ILS 0.35 billion on their own accounts ($t=3.0$). The response of net issuance, tender sales minus redemptions, has $t=1.2$. The sales of long-term institutional investors are a movement along domestic supply. If the institutions sold Makam to pay for the settlement of their hedges, their sales would be larger when the maturing hedges leave them owing shekels. Valued at the spot rate of week $w-3$, net purchases for hedges that leave the institution owing shekels minus net purchases for hedges that leave it receiving shekels are ILS 0.12 billion ($t=1.1$, Table IA.22, Panel C).

IA.4.6 Hedge valuation and other checks

Section 4.1 of the paper dates the foreign share at the last month-end before week $w-3$ and uses the controls listed in Section IA.4.5. We call this specification the baseline. Table IA.13 reports the estimates in the weeks of high foreign ownership for the baseline, for ten variants of the baseline, for the specification that adds the S&P 500 return and the change in the VIX index from week $w-3$ to week w to the controls, and for a winsorized hedge calendar. The variants add the valuation of the maturing hedges, stock returns at the time the maturing contracts were written, and the foreign institutions' own maturing swaps to the controls, move the threshold for the foreign share and the minimum contract age, and change the control for Makam issuance. The valuation of a contract is its dollar amount times the change in the spot shekel price of the dollar from the trade date to the day before week $w-3$ begins, summed over the contracts in the hedge calendar of week w. The row with stock returns adds the S&P 500 returns over the 21 and 91 days before the trade date of each contract in the hedge calendar of week w, weighted by dollar amounts. The row with the foreign institutions' own maturing swaps adds the dollar amount of the matched foreign institutions' forward purchases of dollars that mature in week w under contracts written before week $w-3$. The threshold rows split the weeks at the stated foreign share, and the contract-age rows build the hedge calendar from contracts written at least the stated number of days before week w. The row without Makam issuance drops Makam issuance over weeks $w-2$ and $w-1$ from the controls, and the row with earlier Makam issuance replaces it with Makam issuance over weeks $w-4$ and $w-3$. The row with the winsorized hedge calendar sets the hedge calendar below its 5th percentile and above its 95th percentile in the weeks of high foreign ownership to those percentiles. Estimated jointly on the three- and six-month yields, funding-rate exposure is 22 basis points per 100 basis points in the baseline, with an Anderson–Rubin 95% set from 15 to 36, 23 with the S&P 500 and VIX controls, with a set from 12 to 43, and 24 with the winsorized hedge calendar, with a set from 14 to 39. Across the ten variants three-month funding-rate exposure lies between 18 and 31 basis points per 100 basis points, and the common price impact lies between 2.37 and 3.43 basis points per ILS billion. Table IA.20, Panel B, reports the response of foreign institutions' net acquisitions to the hedge calendar, and Table IA.21 reports the shifted hedge calendars and the estimates by foreign share. In the weeks with a foreign share of 20% to under 30%, the response of the three-month Makam yield differs from its response in the weeks of low foreign ownership with $t = -2.8$.

Six-month estimates and transaction quantities. Table IA.14 reports the baseline of Table 5 of the paper for the six-month Makam yield, with the foreign funding rate and

Table IA.13: The hedge calendar: hedge valuation and other checks

		Three months			Six months		Common
	Weeks	Makam yield	F	Exposure	Makam yield	Exposure	price impact
Baseline	106	-2.53^{***}	20.5	21	-2.28^{***}	24	2.90
		(-3.9)		$[12, 33]$	(-4.8)	$[14, 45]$	$[1.83, 6.11]$
Hedge valuation added	106	-2.23^{***}	18.2	19	-2.28^{***}	25	2.87
		(-2.6)		$[6, 33]$	(-5.0)	$[15, 47]$	$[1.63, 6.62]$
Stock returns at the contract dates	106	-2.17^{***}	18.7	18	-2.03^{***}	23	2.56
		(-3.2)		$[9, 30]$	(-4.2)	$[12, 45]$	$[1.59, 5.24]$
Foreign institutions' own maturing swaps	106	-2.63^{***}	20.4	21	-2.52^{***}	26	2.97
		(-3.6)		$[12, 32]$	(-5.0)	$[15, 49]$	$[1.97, 6.24]$
Threshold of 15%	123	-2.56^{***}	15.9	23	-2.41^{***}	27	3.43
		(-3.9)		$[13, 39]$	(-5.6)	$[16, 54]$	$[2.09, 9.30]$
Threshold of 25%	74	-4.06^{***}	11.3	31	-2.46^{***}	26	2.82
		(-3.9)		$[20, 56]$	(-4.7)	$[14, 73]$	$[1.85, 5.18]$
Threshold of 30%	70	-4.50^{***}	10.1	31	-2.46^{***}	24	2.73
		(-3.8)		$[19, 59]$	(-3.9)	$[10, 85]$	$[1.69, 5.66]$
Contract age of 60 days	106	-2.10^{***}	20.3	19	-1.49^{***}	19	2.37
		(-3.1)		$[10, 29]$	(-3.1)	$[7, 39]$	$[1.26, 4.69]$
Contract age of 97 days	106	-2.08^{***}	25.6	19	-2.51^{***}	29	2.80
		(-2.9)		$[6, 34]$	(-3.7)	$[15, 49]$	$[1.52, 5.59]$
Without Makam issuance	106	-2.61^{***}	21.7	20	-2.44^{***}	25	2.82
		(-3.8)		$[12, 30]$	(-5.8)	$[16, 44]$	$[1.89, 5.51]$
Earlier Makam issuance	106	-2.60^{***}	23.4	19	-2.56^{***}	25	2.85
		(-3.6)		$[11, 29]$	(-6.3)	$[16, 45]$	$[1.88, 5.63]$
S&P 500 and VIX controls	106	-1.42^{**}	22.2	15	-2.49^{***}	34	2.92
		(-2.1)		$[1, 32]$	(-4.9)	$[19, 64]$	$[1.59, 9.24]$
Hedge calendar winsorized	106	-2.46^{***}	24.1	22	-2.20^{***}	27	2.91
		(-3.8)		$[12, 35]$	(-3.9)	$[13, 48]$	$[1.74, 7.13]$

Notes: This table reports checks on column (2) of Table 5 of the paper, with its hedge calendar, controls, and inference. The table reports, for the weeks of high foreign ownership, the response of the Makam yield to the hedge calendar in basis points per USD billion, the first-stage F of the three-month foreign funding rate, funding-rate exposure in basis points per 100 basis points, and the common price impact in basis points per ILS billion added to foreign holdings. Section IA.4.6 defines each variant. Newey–West t-statistics with 8 lags are in parentheses, and Anderson–Rubin 95% sets are in brackets. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

TELBOR at six months, and tests whether funding-rate exposure and price impact are equal at three and six months. Funding-rate exposure is 24 basis points per 100 basis points at six months, and the tests do not reject equal exposure ($p = 0.531$) or equal price impact ($p = 0.686$) at the two maturities. Table IA.15 regresses the quantities behind price impact on the hedge calendar in the weeks of high foreign ownership, with the baseline controls. Foreign acquisitions are purchases at tenders plus net purchases of outstanding bills, before redemptions. The change in foreign holdings is foreign acquisitions minus foreign redemptions, and the change in domestic holdings is net issuance minus the change in foreign holdings. The second panel divides the fall in the Makam yield by each of the three quantities. The third panel follows foreign acquisitions, redemptions, and holdings through week $w + 3$.

Table IA.14: The hedge calendar and the six-month Makam yield: baseline

	(1) Weeks of low foreign ownership	(2) Weeks of high foreign ownership	(3) (2) minus (1)	(4) (2) with the S&P and VIX
Weeks	128	106		106
Response of the Makam yield	0.00	-2.28^{***}	-2.27^{***}	-2.49^{***}
to the hedge calendar (bp per USD bn)	(0.0)	(-4.8)	(-2.9)	(-4.9)
Response of the foreign funding rate	-5.36^{*}	-9.42^{***}	-4.06	-7.22^{***}
to the hedge calendar (bp per USD bn)	(-1.8)	(-4.2)	(-1.1)	(-4.6)
First-stage F	3.3	17.3		21.6
Foreign holdings, first-stage F	3.9	10.7		6.8
Foreign-rate pass-through, least squares	-10^{***}	11^{***}	20^{***}	15^{***}
(bp per 100 bp)	(-7.7)	(4.6)	(7.7)	(5.1)
Funding-rate exposure, E	–	24^{***}		34^{***}
(bp per 100 bp)		(3.6)		(3.5)
Anderson–Rubin 95% set		$[14, 45]$		$[19, 64]$
Price impact, P	–	2.72^{***}		3.66
(bp per ILS bn added to foreign holdings)		(3.2)		(3.5)
Anderson–Rubin 95% set		$[1.53, 6.29]$		$[2.33, 11.08]$
Tests that the three- and six-month estimates of column (2) are equal				
Funding-rate exposure, $\chi^2(1)$ and p-value		0.39 ($p = 0.531$)		
Price impact, $\chi^2(1)$ and p-value		0.16 ($p = 0.686$)		

Notes: This table repeats Panel A of Table 5 of the paper for the six-month Makam yield, with the foreign funding rate and TELBOR at six months. The hedge calendar, the columns, the controls, and the inference are those of that table. The tests of equal estimates use the covariance of the three- and six-month estimates from one Newey–West covariance matrix with 8 lags. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown. Stars are omitted on instrumented estimates whose first-stage F is below 10.

Table IA.15: The hedge calendar: foreign acquisitions, redemptions, and holdings with the baseline controls

Panel A. Quantities on the hedge calendar (ILS bn per USD bn), 106 weeks

	Estimate	t
Foreign acquisitions	0.94^{***}	4.1
purchases at tenders	0.30^{**}	2.0
net purchases of outstanding bills	0.64^{***}	3.1
Foreign redemptions	0.12	0.9
Change in foreign holdings, from transactions	0.82^{***}	3.4
Net issuance	0.02	0.4
Change in domestic holdings, from transactions	-0.80^{***}	-3.5

Panel B. Fall in the Makam yield (bp) per ILS bn of each quantity

	Foreign acquisitions	Change in foreign holdings	Fall in domestic holdings
Three months	2.68	3.07	3.17
	[1.46, 4.75]	[1.65, 6.44]	[1.75, 6.21]
Six months	2.41	2.72	2.88
	[1.37, 4.64]	[1.53, 6.29]	[1.74, 6.02]
Both maturities	2.55	2.90	3.03
	[1.65, 4.45]	[1.83, 6.11]	[2.02, 5.82]
F of the quantity on the hedge calendar, both maturities	16.7	11.1	11.9

Panel C. Foreign transactions through week $w+3$ (ILS bn per USD bn), 103 weeks

	Estimate	t
Foreign acquisitions, weeks $w-2$ to w	0.86^{***}	3.4
Foreign redemptions, weeks $w-2$ to w	0.06	0.5
Change in foreign holdings, weeks $w-2$ to w	0.81^{***}	3.0
Foreign acquisitions, weeks $w+1$ to $w+3$	0.02	0.1
Foreign redemptions, weeks $w+1$ to $w+3$	-0.38^{**}	-2.0
Change in foreign holdings, weeks $w-2$ to $w+3$	1.20^{***}	4.4

Notes: Panels A and B use the 106 weeks of high foreign ownership, and Panel C the 103 of them for which the data on foreign transactions cover week $w+3$. Each row of Panel B uses the baseline controls of the equation at its maturity, and the other panels use those of the three-month equation. Quantities are summed over weeks $w-2$ to w unless the row states otherwise. Foreign acquisitions are purchases at tenders plus secondary purchases minus secondary sales, from the Bank of Israel's data on foreign transactions. Net issuance is the Bank of Israel's sales at tenders minus all redemptions. The change in foreign holdings is foreign acquisitions minus foreign redemptions, and the change in domestic holdings is net issuance minus the change in foreign holdings, both without revaluation. Panel B divides the fall in the Makam yield per USD billion in the hedge calendar by the response of each quantity, and its last row stacks the two maturities. t-statistics are Newey–West with 8 lags, and Anderson–Rubin 95% sets are in brackets. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

IA.4.7 Who supplies the bills that foreign investors acquire

Section 4.1 of the paper reports that domestic holders sell the bills that foreign investors buy. This subsection reports the quantities by sector.

On the exchange, long-term institutional investors and mutual funds sell the bills that foreign investors buy (Table IA.16). In the weeks of high foreign ownership, per USD billion in the hedge calendar, long-term institutional investors sell ILS 0.33 billion of Makam on the exchange ($t = -4.8$), and mutual funds sell ILS 0.22 billion ($t = -2.7$). Under the assumptions of Section 4.1 of the paper, these sales are a movement along the domestic supply curve. The Makam yield falls, and domestic holders sell bills to foreign investors.

In the model the bills that foreign investors add come from domestic holders and from new issuance. With the level terms fixed, when foreign holdings rise by one shekel, domestic investor j supplies δ_j/B of the shekel and the issuer supplies ϕ/B,

$$-\frac{dD_j}{dF} = \frac{\delta_j}{B}, \qquad \frac{dS}{dF} = \frac{\phi}{B}. \tag{IA.3}$$

Exchange trades measure one part of this adjustment. The exchange sales of long-term institutional investors equal 35% of foreign acquisitions, and the exchange sales of mutual funds equal 24%. Over the same weeks long-term institutional investors held 28% of Makam outstanding and mutual funds held 33%. Long-term institutional investors therefore sell more bills on the exchange relative to their holdings than mutual funds sell. Net issuance rises by ILS 0.02 billion ($t = 0.4$), 3% of foreign acquisitions. A sector's contribution to the domestic supply slope B depends on how readily the sector sells, whatever the size of the sector's holdings.

Banks act as dealers. They buy on the exchange and do not add to their holdings. In the weekly regression banks buy ILS 0.22 billion of Makam on the exchange per USD billion in the hedge calendar ($t = 3.3$). In a monthly regression over the 26 months of high foreign ownership, banks buy ILS 0.09 billion of Makam on the exchange per USD billion in the hedge calendar of the month ($t = 1.7$), their holdings fall by ILS 0.22 billion through other transactions and valuation ($t = -2.7$), and the net change in their holdings is a fall of ILS 0.13 billion ($t = -1.2$).

Table IA.16: Who supplies the bills that foreign investors acquire

	Response to the hedge calendar (ILS bn per USD bn)	Response as % of foreign acquisitions	Share of Makam outstanding (%)
Panel A. Exchange trades and holdings by sector, weeks of high foreign ownership			
Long-term institutional investors	-0.33^{***}	-35	28
	(-4.8)		
Mutual funds	-0.22^{***}	-24	33
	(-2.7)		
Banks	0.22^{***}	$+24$	5
	(3.3)		
Foreign investors, on the exchange	0.50^{***}		34
	(3.8)		
Foreign investors, all acquisitions	0.94^{***}		
	(4.1)		
Net issuance	0.02	$+3$	
	(0.4)		
Panel B. Banks, monthly			
Net exchange purchases	0.09^{*}		
	(1.7)		
Other transactions and valuation	-0.22^{***}		
	(-2.7)		
Change in holdings	-0.13		
	(-1.2)		

Notes: Panel A regresses each sector's net purchases of Makam on the Tel Aviv Stock Exchange, foreign acquisitions, and net issuance over weeks $w-2$ to w on the hedge calendar, in the 106 weeks of high foreign ownership with the baseline controls. Foreign acquisitions are tender and secondary purchases minus secondary sales. Percentages use unrounded coefficients, and shares of Makam outstanding are means over the month-ends that classify the weeks. Investor types on the exchange differ from the Bank of Israel holder sectors. Panel B regresses banks' monthly change in holdings, their net purchases on the exchange, and the difference between the two on the hedge calendar summed over the month and an indicator for 2022, over the 26 months in which foreign investors held 20% or more of Makam at the end of the previous month. Newey–West t-statistics with 8 lags in Panel A and 3 lags in Panel B are in parentheses. Sources: Bank of Israel, the Tel Aviv Stock Exchange, and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

IA.4.8 The year-end pause

Section 5.4 of the paper shows that foreign buying pauses at year-end, when global banks shrink their balance sheets, and that the Makam yield rises during the pause. Figure IA.6 plots foreign acquisitions and the change in the Makam yield around the first week ending on or after 11 December. To estimate each response, we regress each weekly outcome on indicators for weeks ending from the 11th through the last day of December and for the same weeks of March, June, and September, with the demeaned lagged foreign share and its interactions with the indicators. For the Makam yield,

$$\Delta y_w = \alpha + \beta_Y\, YE_w + \beta_Q\, QE_w + \left(\lambda + \lambda_Y\, YE_w + \lambda_Q\, QE_w\right) s_w + \theta_D\, \Delta r^D_w + \theta_F\, \Delta r^F_w + \varepsilon_w, \quad \text{(IA.4)}$$

where YE_w and QE_w indicate the year-end and other quarter-end weeks, s_w is the demeaned lagged foreign share, and Δr^D_w and Δr^F_w are the weekly changes in TELBOR and the foreign funding rate. The regressions for foreign acquisitions in Table IA.17 omit the two rate changes. Foreign acquisitions fall by ILS 2.4 billion over the three year-end weeks, against ILS 0.2 billion in the same weeks of other quarters, and the three-month yield rises by 8.6 basis points (Table IA.17). With the two rate changes added to the regression for foreign acquisitions, as in the regression for the Makam yield, foreign acquisitions fall by ILS 2.3 billion over the three year-end weeks ($t = -8.8$, 288 weeks). Section 5.4 of the paper uses the fall estimated with the two rate changes. The t-statistics of the year-end rise in the yield are 3.7 and 3.8 with 8 and 13 Newey–West lags, and a bootstrap that resamples whole calendar years gives $p = 0.003$.

IA.4.9 The funding term with scaled funding-rate exposure

Figure IA.7 plots the funding term of Section 5.2 of the paper with funding-rate exposure scaled to each month's foreign share, the first calculation of Table 7 of the paper.

IA.4.10 The weight of TELBOR in the Makam yield

With $a = b$ the weights of TELBOR and of the foreign funding rate in the Makam yield sum to one, so the model of Section 3 of the paper ties the response of the Makam yield to TELBOR to funding-rate exposure. At a given foreign funding rate, the weight of TELBOR in the Makam yield is

$$\frac{\partial y}{\partial r^D} = \frac{B}{a + B} = 1 - E. \quad \text{(IA.5)}$$

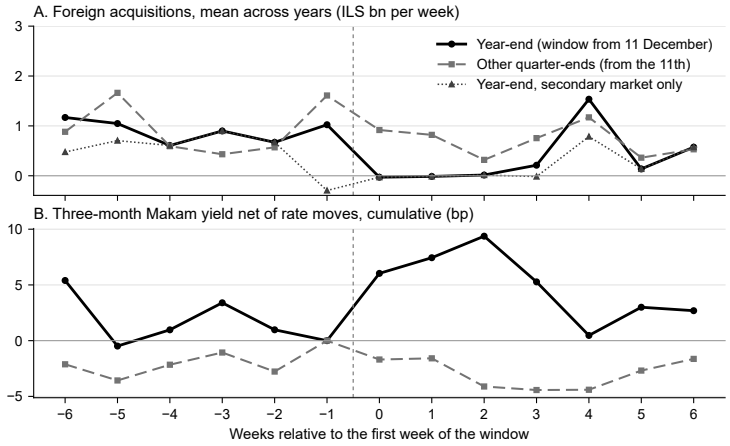


Figure IA.6: **Foreign purchases and Makam yields around year-end, 2017–2023.** Week 0 is the first week ending on or after the 11th of December or of the other quarter-end months. Panel A averages over 2017–2021, the years the data on foreign transactions cover, and Panel B over the 7 year-ends of 2017–2023. Panel B nets out the fitted effects of TELBOR and the foreign funding rate and sets week −1 to zero. The data come from the Bank of Israel and LSEG.

Table IA.17: The year-end pause in foreign buying

	Last three weeks of December	Same weeks of March, June, and September	Year-ends
Foreign acquisitions (ILS bn)	−2.4***	−0.2	2017–2021
	(−9.3)	(−0.4)	
secondary market only	−1.0***	1.2*	2017–2021
	(−4.0)	(1.8)	
with the two rate changes	−2.3***	−0.5	2017–2021
	(−8.8)	(−1.0)	
Three-month Makam yield (bp)	8.6***	−5.3	2017–2023
	(3.2)	(−1.6)	
year-ends of 2017–2021	7.4***		2017–2021
	(3.8)		

Notes: This table reports the change in foreign acquisitions and in the three-month Makam yield over the weeks ending between 11 December and the end of December and the matching weeks of other quarter-ends. The weekly samples run from January 2017 to August 2022 for purchases and to September 2024 for the yield. Each entry is three times the coefficient on the window indicator in equation (IA.4), evaluated at the mean foreign share, without the two rate changes for foreign acquisitions except in the row with the two rate changes. Newey–West t-statistics with 4 lags are in parentheses. Sources: Bank of Israel and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

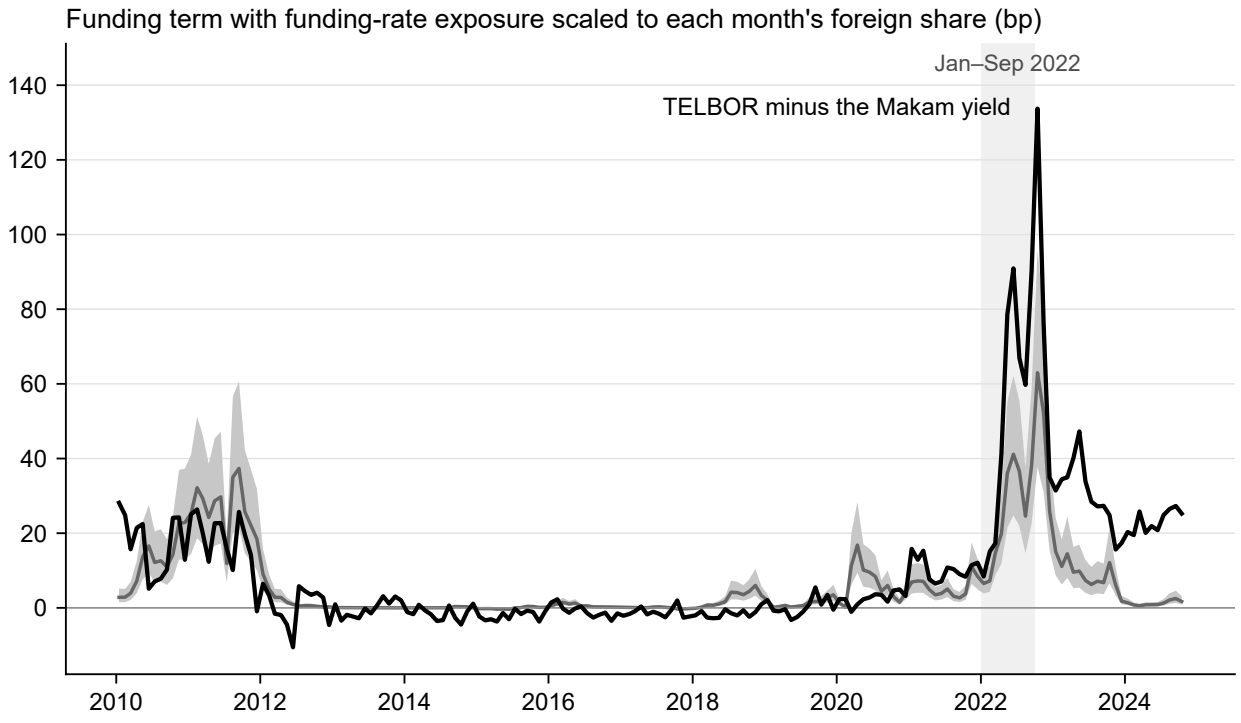


Figure IA.7: **TELBOR minus the Makam yield and the funding term with scaled funding-rate exposure, January 2010 to October 2024.** Series are monthly means of daily data, plotted at mid-month, with the funding term in gray. Funding-rate exposure is scaled to the foreign share at the end of the previous month, with the foreign slope a proportional to the foreign share and the domestic supply slope B fixed. The band evaluates the funding term at the ends of the Anderson–Rubin 95% set of funding-rate exposure. The data come from the Bank of Israel and LSEG.

At the calibrated slopes the weight of TELBOR is 79 basis points per 100 basis points. The second stage of the baseline regression estimates the coefficient on the change in TELBOR directly, and the estimate is 42 basis points per 100 basis points ($t = 1.3$). The two estimated weights sum to 62 basis points per 100 basis points, and the test that the sum equals 100 has $p = 0.166$. The data do not reject the restriction that the two weights sum to one. Table IA.18 reports the estimates.

Table IA.18: Weight of TELBOR in the three-month Makam yield (bp per 100 bp)

Implied by the calibrated slopes, $B/(a+B)$	79
	[67, 88]
Estimated coefficient on the change in TELBOR	42
	(1.3)
Sum of the estimated weights of TELBOR and the foreign funding rate	62
p-value of the test that the sum equals 100	0.166

Notes: Entries are rounded separately. This table reports the weight of TELBOR implied by the calibration of Table 7 of the paper, $B/(a+B)$ from equation (IA.5), with the ends of the Anderson–Rubin set of funding-rate exposure in brackets, and the coefficient on the change in three-month TELBOR in the second stage of the regression for the weeks of high foreign ownership. Newey–West t-statistics with 8 lags are in parentheses. Sources: Bank of Israel and LSEG.

IA.5 Funding rates and the Makam yield

Section 3 of the paper states Proposition 1, and Section 5 calibrates the model to the hedge-calendar estimates. This section proves the proposition and derives the responses that the hedge calendar measures when the foreign funding rate itself responds to foreign demand.

IA.5.1 Proof of Proposition 1

Proof. Write the foreign slopes as $a = na_0$ and $b = nb_0$, where n is the size of the foreign investor base, so that growth of the base is a rise in n. Equations (11) and (12) give

$$\frac{\partial y}{\partial r^F} = \frac{nb_0}{na_0 + B}, \qquad \left|\frac{\partial y}{\partial u}\right| = \frac{1}{na_0 + B}.$$

(i) Differentiating with respect to n,

$$\frac{\partial}{\partial n}\frac{nb_0}{na_0 + B} = \frac{b_0 B}{(na_0 + B)^2} > 0 \quad \text{for } B > 0, \qquad \frac{\partial}{\partial n}\frac{B}{na_0 + B} = -\frac{a_0 B}{(na_0 + B)^2} < 0.$$

(ii) Let $G = a_0 y - b_0 r^F > 0$, so that $F = nG + u$. Differentiating the market-clearing condition $nG + u + \bar{D} - \delta(r^D - y) = \bar{S} + \phi(r^D - y)$ with respect to n gives $\partial y/\partial n = -G/(na_0 + B) < 0$. Hence

$$\frac{\partial F}{\partial n} = G + na_0\frac{\partial y}{\partial n} = \frac{G\,B}{na_0 + B} > 0, \qquad \frac{\partial D}{\partial n} = \delta\,\frac{\partial y}{\partial n} \le 0,$$

where $D = \bar{D} - \delta(r^D - y)$ is domestic holdings. Since $S = F + D$,

$$\frac{\partial}{\partial n}\frac{F}{S} = \frac{1}{S^2}\left(D\,\frac{\partial F}{\partial n} - F\,\frac{\partial D}{\partial n}\right) > 0$$

for $F > 0$ and $D > 0$. Issuance enters only through ϕ in B, so the endogeneity of S does not affect the sign.

(iii) Differentiating with respect to n,

$$\frac{\partial}{\partial n}\frac{1}{na_0 + B} = -\frac{a_0}{(na_0 + B)^2} < 0.$$

Market clearing gives $F = S - D = \bar{S} - \bar{D} + B(r^D - y)$. With r^D, $\bar{S}$, $\bar{D}$, and the set of active domestic investors fixed, any change in u, n, b, or r^F gives $dF = -B\,dy$, so $-dy/dF = 1/B$, which does not contain n.

(iv) Funding-rate exposure $nb_0/(na_0 + B)$, the response $1/(na_0 + B)$ to a shift in foreign demand, and price impact $1/B$ are strictly decreasing in B, so a fall in B raises all three. □

IA.5.2 Foreign demand and the foreign investor base

This subsection gives the microfoundation of the finite foreign demand of equation (6) of the paper and discusses why the slopes change with the foreign investor base.

Foreign investors do not keep buying until the Makam yield falls to their funding rate. From 2018 to 2019 the hedged spread on Makam averaged 28 basis points while the Makam yield stayed at TELBOR (Table 1 of the paper). Had foreign investors been able to buy without limit, they would have bought until the Makam yield fell to the foreign funding rate and the hedged spread fell to zero. The hedged spread stayed at 28 basis points, so foreign demand was limited. The global banks that could arbitrage the hedged spread away pay a regulatory cost on every position they add to their balance sheets, and so take only limited positions (Avdjiev, Du, Koch, and Shin (2019), Cenedese, Della Corte, and Wang (2021)). The key assumption of the model is that foreign demand is finite at given rates.

The linear demand of equation (6) of the paper is the reduced form of a convex balance-sheet cost. Suppose each unit of the foreign investor base earns the hedged spread on its position and pays a cost that is convex in the position. The unit holds the position at which the hedged spread equals the marginal cost. A one-basis-point rise in the Makam yield and a one-basis-point fall in the foreign funding rate each raise the hedged spread by one basis point, so $a_0 = b_0$, and both equal the inverse of the curvature of the cost at the position held. Greater curvature of the cost lowers both slopes. With a quadratic cost, a higher charge per shekel of position lowers the level of foreign demand and leaves both slopes unchanged. Equation (6) is more general, because it lets a differ from b.

The foreign investor base grows when Makam becomes the most profitable use of a global bank's balance sheet (Section 2.1 of the paper). The paper uses the foreign share of Makam as the measure of the base, and Section 5 of the paper reports a calculation in which a rises in proportion to the foreign share.

Funding-rate exposure can therefore rise with the foreign share for two reasons. A larger foreign investor base wants more bills after the same fall in the foreign funding rate (part (i)). Domestic holders part with bills less readily once banks have left (part (iv)). Banks are the most elastic holders of Makam, because a deposit at the Bank of Israel, which pays about TELBOR, is a close substitute for the bills. Once banks hold no Makam, they can sell no more, and the remaining holders give up bills less readily. Stein and Wallen (2025) find the same order in U.S. Treasury bills, where money market funds sell first and less elastic holders then become marginal. Section 5 of the paper reports the attribution under each reason, first with the foreign slope a proportional to the foreign share and then with the domestic supply slope B also proportional to the domestic share.

From 2018 to 2024 the two reasons came together. The growing foreign base bought the

bills that banks sold until banks held almost none (Section 1.4 of the paper), so that episode alone cannot separate the two reasons. In the 18 weeks of 2010 to 2012 in which foreign investors held more than 30% of Makam (Section 2.4 of the paper), however, foreign-rate pass-through was high while banks held 13% of Makam, and the banks traded the bills readily. When foreign investors left after the 2011 tax change, banks took ILS 31.7 billion of the bills that foreign investors released (Section 4.2 of the paper). The first episode therefore shows high foreign-rate pass-through while banks held Makam and traded Makam readily. A lower balance-sheet cost is a plausible reason why foreign-rate pass-through was so high in the first episode. The first episode predates the Basel III leverage ratio, which banks disclosed from 2015 and which became a minimum requirement in 2018 (Basel Committee on Banking Supervision (2014)). Before the leverage ratio, a global bank could add a hedged position to its balance sheet at a lower cost. In the model a less convex balance-sheet cost raises a_0 and b_0, and funding-rate exposure is then high even when domestic banks supply bills readily.

A holder whose holdings do not respond to the yield has $\delta_j = 0$ and adds nothing to the domestic supply slope, however many bills the holder owns. The holder's bills enter the Makam yield through the level term $\bar{D}$ alone. Funds that track foreign stock indices hold Makam as collateral whatever the Makam yield, and adding the funds' share of Makam to the ownership regression leaves the relation between foreign-rate pass-through and the foreign share in place (Section IA.2.3).

The paper takes the implications of the model to the data. Funding-rate exposure rises with the foreign investor base (Proposition 1, part (i)), and foreign-rate pass-through, its least-squares counterpart, rises with the foreign share in both Israeli episodes (Section 2.2 of the paper) and in Mexican and Japanese bills (Section 6 of the paper). The weight of TELBOR falls as the foreign investor base grows, and the response of the Makam yield to TELBOR falls as the foreign share rises (Table 3 of the paper, column 4). The Makam yield can fall below the rate that any domestic bank would accept, and the Makam yield was below zero while TELBOR was positive (Section 2.1 of the paper). Foreign demand rises with the Makam yield and falls with the foreign funding rate (equation (6) of the paper), and the predictive regressions of foreign holdings have both signs (Section 2.3 of the paper).

IA.5.3 The foreign funding rate as a price

Sections 4.1 and 5.1 of the paper note that foreign investors' forward purchases raise the cost of the swap, so foreign demand and the foreign funding rate affect each other. Here we derive what the hedge calendar and least squares measure in that case. Let the funding rate

respond to foreign holdings,

$$r^F = \bar{r}^F + \kappa F + v - \eta Z, \qquad \kappa, \eta \geq 0, \tag{IA.6}$$

where $\bar{r}^F$ is a constant, κ is the rise in the foreign funding rate per unit of foreign holdings, η is its fall per unit of Z, Z is the supply of forward dollars from domestic institutions' hedge renewals, and v collects other shocks to swap supply. Hold TELBOR, $\bar{S}$, $\bar{D}$, and the set of domestic investors with positive holdings fixed. Market clearing gives $F = \bar{S} - \bar{D} + B(r^D - y)$, so every shock satisfies $dF = -B\,dy$.

A shift in foreign demand. Let $L = a + B + \kappa B b$. A rise in u lowers the Makam yield by

$$-\frac{dy}{du} = \frac{1}{L}.$$

Proposition 1 holds the foreign funding rate fixed ($\kappa = 0$). With $\kappa > 0$, the rise in foreign holdings raises the funding rate, which offsets part of the fall in the yield. Price impact, the fall in the Makam yield per unit added to foreign holdings, remains $-dy/dF = 1/B$, because $dF = -B\,dy$ whatever moves foreign demand.

Two instrumental-variable ratios. A rise in swap supply Z gives

$$\frac{dy}{dZ} = -\frac{\eta b}{L}, \qquad \frac{dr^F}{dZ} = -\frac{\eta(a+B)}{L}, \qquad \frac{dF}{dZ} = \frac{B\eta b}{L},$$

so

$$\frac{dy/dZ}{dr^F/dZ} = \frac{b}{a+B}, \qquad -\frac{dy/dZ}{dF/dZ} = \frac{1}{B}.$$

The first ratio is funding-rate exposure, equation (11), and the second is price impact, the fall in the Makam yield per unit added to foreign holdings, equation (13). The hedge calendar shifts swap supply in this way, and Table 5 of the paper reports the first ratio as funding-rate exposure and the second as price impact. Neither ratio depends on κ or η. If Z also shifts foreign demand directly, $u = \psi Z$ with $\psi \neq 0$, then $dy/dZ = -(\eta b + \psi)/L$ and $dr^F/dZ = \big(\kappa B\psi - \eta(a+B)\big)/L$, and the first ratio no longer equals funding-rate exposure. Price impact still equals $1/B$, because $dF = -B\,dy$ holds for every shock.

Least squares. Suppose the funding rate moves with independent foreign-demand shocks u, with variance σ_u^2, and swap-supply shocks v, with variance σ_v^2. The responses to v are $dy/dv = b/L$ and $dr^F/dv = (a+B)/L$, and the responses to u are $dy/du = -1/L$ and $dr^F/du = \kappa B/L$. For $\kappa > 0$, the least-squares coefficient of the change in the Makam yield

on the change in the funding rate, θ_F in equation (2) of the paper, is

$$\theta_F = (1-\omega)\,\frac{b}{a+B} - \frac{\omega}{\kappa B}, \qquad \omega = \frac{\kappa^2 B^2 \sigma_u^2}{\kappa^2 B^2 \sigma_u^2 + (a+B)^2 \sigma_v^2},$$

where ω is the share of the variance of the funding rate that comes from foreign-demand shocks. With independent shocks and nonnegative feedback, least squares understates funding-rate exposure whenever foreign-demand shocks move the funding rate, and the least-squares coefficient is zero or negative for large ω. The bias in the ownership interaction is downward if the standard deviation of foreign-demand shocks grows in proportion to the foreign investor base.

Domestic supply shocks. The supply of bills from domestic holders and the issuer can also shift. Subtract conditional means and hold TELBOR fixed, so that

$$F - ay + br^F = u, \qquad F + By = \varepsilon, \qquad r^F - \kappa F = v,$$

where ε is a shock to net supply from domestic holders and the issuer, which falls when domestic demand rises. With $A = a + B$ and $L = A + \kappa bB$, equilibrium gives

$$y = \frac{-u + (1+\kappa b)\varepsilon + bv}{L}, \qquad r^F = \frac{\kappa B u + \kappa a \varepsilon + Av}{L}.$$

Funding-rate exposure is $E = b/A$. Let $V_f = \operatorname{Var}(\kappa B u + \kappa a \varepsilon + Av) > 0$. The conditional least-squares slope satisfies

$$\theta_F - E = \frac{L}{AV_f}\Big[\kappa a \operatorname{Var}(\varepsilon) - \kappa B \operatorname{Var}(u) + \kappa(B-a)\operatorname{Cov}(u,\varepsilon) + A\{\operatorname{Cov}(\varepsilon,v) - \operatorname{Cov}(u,v)\}\Big].$$

With zero feedback and positive $\operatorname{Var}(v)$, least squares equals exposure exactly when $\operatorname{Cov}(\varepsilon, v) = \operatorname{Cov}(u, v)$. With independent innovations and positive feedback, the bias has the sign of $a \operatorname{Var}(\varepsilon) - B \operatorname{Var}(u)$. Domestic supply shocks and foreign-demand shocks push the bias in opposite directions, which is why Section 5 of the paper takes funding-rate exposure from the hedge calendar instead of reading funding-rate exposure from foreign-rate pass-through.

IA.6 Evidence beyond Israel

Section 6 of the paper estimates regression (3) on three-month bills in Mexico and Japan. This section describes the data for each market and asks whether the estimates survive other samples, trimming, and measurement choices. In each market the foreign funding rate is the three-month local-currency rate implied by covered interest parity, from LSEG spot rates, three-month forward points, and the three-month dollar overnight-index-swap rate plus the fixed spread of 26.161 basis points (footnote 5 of the paper). Each rate change is interacted with the demeaned lagged foreign share of bills outstanding. Weekly changes are taken over consecutive weeks.

Israel and Mexico. For Israel, the bill yield is the Bank of Israel three-month Makam curve, the domestic benchmark is three-month TELBOR, and the foreign share is Bank of Israel nonresident holdings of Makam over Makam outstanding at market value, at the end of the previous month, from Jan 2010 to Sep 2024. For Mexico, the bill yield is the LSEG three-month Cetes yield, the domestic benchmark is the 91-day TIIE, and the foreign share is Banco de México nonresident holdings of Cetes over Cetes outstanding at nominal value (tables CA175 and CA145), at the end of the previous month, from Jan 2008 to Dec 2023. The Mexican sample ends before the 2024 change in how the TIIE is computed.

Japan. The bill yield is the three-month Treasury discount bill yield at the average auction price of the Ministry of Finance, averaged over each week's auctions, and the domestic benchmark is the three-month yen overnight-index-swap rate. The foreign share is overseas holdings of Treasury discount bills over all Treasury discount bills in the Bank of Japan flow of funds (Bank of Japan (2026)), at the end of the previous quarter. The auction-to-auction variant measures each change from one weekly auction to the next, with the domestic benchmark and the foreign funding rate at the close before each auction.

Variants. In Mexico, the estimate of Table 9 implies 2.9 basis points of additional pass-through per 10 percentage points of foreign ownership, and Table IA.19 shows it between 1.6 and 3.3 when one year is dropped at a time and between 1.8 and 3.0 across the longer, shortened, and trimmed samples. In Japan, measuring changes from auction to auction gives 2.0 ($t = 5.0$), against 2.3 in the weekly regression.

Dollar rate and forward premium. The foreign funding rate combines the dollar rate and the forward premium, and, as for Israel in Section IA.2.3, we interact the weekly change in each component separately with the foreign share. In Mexico the forward premium gives

2.9 basis points per 10 percentage points of foreign ownership ($t = 3.2$), and the dollar rate gives 2.3 ($t = 0.2$). In Japan the forward premium gives 2.2 ($t = 2.8$), and the dollar rate gives 5.8 ($t = 1.6$). With the weekly change in the VIX index and its product with the foreign share added to the regression, the forward premium gives 3.0 in Mexico ($t = 3.5$) and 2.2 in Japan ($t = 2.4$). With the weekly S&P 500 return as well, on the weeks from 2010 onward, it gives 2.9 in Mexico ($t = 2.6$) and 2.4 in Japan ($t = 2.6$).

Table IA.19: Other bill markets: change in foreign-rate pass-through per 10 percentage points of foreign ownership (bp per 100 bp)

	Estimate	t	Weeks
Panel A. Mexico			
Baseline, Jan 2008–Dec 2023	2.9***	3.2	824
Sample from 2005	2.4***	2.7	970
Excluding March–June 2020	3.0***	3.4	807
Excluding September 2008–June 2009	2.2**	2.2	
Foreign funding rate changes winsorized at 1% and 99%	2.0**	2.1	
Without the largest 1% of foreign funding rate changes	2.5***	2.8	
Without the largest 1% of yield changes	2.4***	2.8	
Without the largest 1% of both	1.8**	2.1	
Dropping one year at a time, smallest	1.6	1.6	
Dropping one year at a time, largest	3.3***	3.5	
Panel B. Japan			
Baseline, weekly, 2010–2024	2.3***	3.0	711
Auction to auction	2.0***	5.0	
Dropping one year at a time, smallest	1.7		
Dropping one year at a time, largest (without 2020)	4.1***	3.1	

Notes: This table reports the ownership regression of Table 9 of the paper for Mexico and Japan with one element changed in each row. Samples are weekly three-month bills, as described in Section IA.6. Trimmed rows drop the weeks with the largest 1% of absolute weekly changes. t-statistics are Newey–West with 4 lags. Sources: Banco de México, Bank of Japan, Japanese Ministry of Finance, and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

Table IA.20: Timing of foreign ownership and the response of foreign institutions

Panel A. Shifted foreign-share series

	Ownership interaction	t	Shifts	Shifts with t at least as large (%)	95th percentile of shifted t
Israel	7.4	3.3	154	0.0	2.1
Mexico	2.9	3.2	169	1.8	3.0
Japan	2.3	3.0	53	0.0	1.6

Panel B. Response of foreign institutions to the hedge calendar

		Institutions	Per institution		All institutions	
	Weeks	per week	Estimate	t	Estimate	t
Low foreign ownership	128	6.9	0.015	0.4	0.01	0.0
High foreign ownership	106	16.5	0.056	4.8	0.87	3.8

Notes: Panel A re-estimates the ownership regression of Table 9 of the paper with the foreign share replaced by the same series shifted circularly by 12 months or more, or four quarters or more in Japan. The ownership interaction is in basis points per 100 basis points per 10 percentage points of foreign ownership, and t is its t-statistic with the actual series. Panel B regresses each institution's net acquisitions of Makam over weeks $w-2$ to w, and their sum across institutions, on the hedge calendar of week w, in ILS billion per USD billion, in the weeks of low and of high foreign ownership. An institution is the parent of a nonresident account and is counted in week w if it has a transaction record in weeks $w-15$ to $w-3$. t-statistics are Newey–West with 4 lags in Panel A and Newey–West with 8 lags in Panel B, where the per-institution regression sums each institution's scores by week. Sources: Bank of Israel, Banco de México, Bank of Japan, and LSEG.

Table IA.21: Shifted hedge calendars and the hedge calendar by foreign share

Panel A. Shifted hedge calendars and the difference between the two groups of weeks

	Three months	Six months
t-statistic, actual hedge calendar	−3.3	−2.9
Largest $\|t\|$, shifted hedge calendars	2.9	3.3
Shifted hedge calendars with $\|t\|$ at least as large	0	1
Shifted hedge calendars	43	43

Panel B. The hedge calendar by foreign share

Foreign share	Weeks	First week	Last week	Mean share (%)	Makam yield	Foreign funding rate	F
Below 20%	128	25 Jan 2018	25 Feb 2021	10	0.14	−4.5	1.7
					(0.3)	(−1.3)	
20% to under 30%	36	2 Jul 2020	22 Apr 2021	23	−2.78	−5.3	5.5
					(−3.0)	(−2.3)	
30% or more	70	29 Apr 2021	25 Aug 2022	39	−2.91	−15.6	26.7
					(−3.3)	(−5.2)	

Notes: Panel A replaces the hedge calendar of week w with that of week $w + k$, for k from −26 to −5 and from 5 to 26, excluding $k = 13$, and reports the t-statistic of the response of the Makam yield in the weeks of high foreign ownership minus the response in the weeks of low foreign ownership. Panel B groups the weeks by the foreign share at the last month-end before week $w - 3$ and regresses the changes in the three-month Makam yield and foreign funding rate on the hedge calendar, in basis points per USD billion, with a coefficient and an intercept for each group and the baseline controls. Dates are the ends of the first and the last week of each group, and F is the first-stage F-statistic for the foreign funding rate. Newey–West t-statistics with 8 lags are in parentheses. Sources: Bank of Israel and LSEG.

Table IA.22: Further estimates cited in the text

	Estimate	t	Observations
Panel A. Monthly change in foreign holdings of Makam (ILS bn)			
Change in the foreign funding rate, per 100 bp	-4.8^{***}	-4.2	177
multiplied by the demeaned foreign share, per bp	-0.064	-1.2	177
Panel B. Foreign purchases of Makam and the hedges scheduled to mature			
Monthly net purchases, all venues	0.92^{***}	3.0	68
Monthly net purchases, on the exchange	0.49^{***}	3.4	118
Weekly tender purchases, week before maturity	0.20^{**}	2.4	185
Weekly secondary-market purchases, week of maturity	0.19^{**}	2.1	188
Panel C. The hedge calendar			
First stage, 2023–2024	0.67	0.4	96
first-stage F	0.1		
Largest first stage, 2010–2011	6.4		78
first-stage F	2.2		
Eleven-month yield, high foreign ownership	-1.42^{***}	-4.1	109
other weeks	0.28	0.7	125
Sales of long-term institutional investors	0.27^{***}	3.7	234
net purchases, owing shekels	-0.19^{***}	-2.7	234
net purchases, receiving shekels	-0.31^{***}	-3.0	234
net purchases, owing minus receiving	0.12	1.1	234
Panel D. Change in Makam holdings of mutual funds (ILS bn)			
Funds that track foreign stock indices	+8.2		
Other mutual funds	-0.7		
All mutual funds	+7.5		

Panel E. Banks

	Largest holder	Second-largest holder
Makam holdings before the sales (ILS bn)	13.1	19.3
Makam holdings after the sales (ILS bn)	0.9	3.5
Liquidity coverage ratio, end of 2019 (%)	120	121
Liquidity coverage ratio, end of 2020 (%)	132	138
Five largest banks' Makam, January 2021 (ILS bn)	0.4	

Notes: Panel A regresses the monthly change in foreign holdings, January 2010 to September 2024, on the same month's changes in TELBOR and the foreign funding rate, each change multiplied by the demeaned foreign share, and the foreign share. Panel B regresses foreign net purchases of Makam, in ILS billion, on the hedges scheduled to mature, standardized in the monthly rows and in USD billion in the weekly rows, which use the following week's maturities for tender purchases and the same week's for secondary purchases. The all-venues row uses the data on foreign transactions, and it and the weekly rows control for lagged outstanding dollar hedges. Panel C reports first stages of the hedge calendar for the change in the foreign funding rate, in basis points per USD billion, with controls for the timing of rate decisions in 2010–2011, and reduced forms for the eleven-month yield by foreign share at the end of the previous month. Its last rows are the exchange sales of long-term institutional investors over weeks $w-2$ to w in all weeks, in ILS billion per USD billion, and their net purchases for maturing hedges that leave them owing or receiving shekels at the spot rate of week $w-3$. Panel D uses fund-level portfolios from May 2020 to December 2021. Panel E uses supervisory data for the two banks with the largest Makam holdings in 2019, which sold from May to December 2020 and from June 2019 to May 2020, with liquidity coverage ratios for the fourth quarter. t-statistics are Newey–West with 3 lags in Panel A, 4 lags in Panel B, and 8 lags in Panel C. Sources: Bank of Israel, the Tel Aviv Stock Exchange, and LSEG. *, **, and *** denote significance at the 10, 5, and 1% levels, based on the t-statistics shown.

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