THE ON THE RUN VERSUS OFF THE RUN LIQUIDITY PREMIUM IN INDIAN GOVERNMENT SECURITIES: EVIDENCE AND THE EFFECT OF GLOBAL BOND INDEX INCLUSION

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Abstract
Government bond markets price identical securities differently according to how recently they were issued. The recently auctioned bond at a given maturity i.e. on-the-run typically trades at a yield discount as compared to the off-the-run bonds of similar residual maturity and coupon. This should be happening because of the inferior secondary-market liquidity exerted by the off the run bonds. The paper deals with daily data of on the run versus off the run liquidity premium in the Indian government securities (G-Sec) market. While doing so, the researcher has taken care of using matched-maturity yield spreads between RBI-designated benchmark bonds and comparable off-the-run issues across the 5-, 10- and 14-year tenors. The period under consideration is eight-month window (April–November 2024, 152–158 trading days per tenor) covering India's phased inclusion in global bond indices. In all three tenors, on-the-run bonds trade at a statistically significant average discount of 1.8 to 3.6 basis points relative to most comparable off-the-run issues. During the further analysis, t-statistics of 5.1 to 14.0, confirms the anomaly is evident across the curve.

The premium narrowed significantly for the 10-year tenor after the index-inclusion event, as with foreign inflows deepening liquidity in the benchmark issue. The 14-year tenor shows structural break at the event date without a significant mean shift, while the 5-year tenor produces an ambiguous result, coinciding with a benchmark switch four weeks before the event.

Keywords: on-the-run premium; bond market liquidity; government securities; India; market microstructure; index inclusion.

Introduction
Asset-pricing theory assumes that two bonds with identical credit risk, coupon and maturity should always trade at the same yield. In India, government bond markets violate this prediction many a times. The on-the-run or benchmark bond constitutes the major share of secondary-market trades and eventually commands a yield discount relative to older, off-the-run bonds of similar characteristics (Amihud& Mendelson, 1991; Warga, 1992). This on-the-run premium has been seen in the U.S. Treasury market (Krishnamurthy, 2002; Pasquariello & Vega, 2009) but is under-studied in India though the Indian G-Sec market's size exceeding ₹100 trillion.

India context is relatively different than others. The Reserve Bank of India periodically designates a single benchmark security in each key tenor (5-, 10- and 14-year) through its auction and re-issuance calendar. Accordingly, trading on the NDS-OM platform is even more concentrated in this benchmark. RBI has also use time to time buyback auctions since 2015 to convert illiquid off-the-run securities into the benchmark one. This paper relates this process and point outs the liquidity-fragmentation problem. India's phased inclusion in the JPMorgan GBI-EM and Bloomberg Global Aggregate indices from mid-2024 attracted significant foreign portfolio inflows puts forward a question, about whether there is a relationship of external demand and the domestic liquidity premium. This research thus puts forward two key questions, does a significant on-the-run yield discount exist across key G-Sec maturities and whether that discount narrows following the 2024 index-inclusion event.

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Literature Review

Amihud and Mendelson (1991)illustrated that U.S. Treasury bills with similar maturity and different liquidity features were priced differently, proving liquidity is also as a component of the yield apart from credit risk and interest-rate risk. Warga (1992)related similartheoremto Treasury bonds. Fleming and Remolona (1999) and Fleming (2002) presented how newly opened or newly auctioned Treasury issues attract disproportionate trading volume, precisely differentiating on-the-run versus off-the-run framework. Krishnamurthy (2002) quantified the "On the run versus Off the run spread" for 30-year Treasury bonds and reasoned this to flight-to-liquidity. Pasquariello and Vega (2009)mentions that premium responds to both macroeconomic news andilliquidity. Longstaff (2004) generalised the concept to a broader flight-to-liquidity premium. Goyenko, Subrahmanyam and Ukhov (2011) showed that bond-market liquidity itself carries a term structure, while Favero, Pagano and von Thadden (2010)researched liquidity-yield analysis to European sovereign bonds, proving the concept is not U.S.-specific.

India evidences also support of the mechanism. Dayanandan, Chander and Rajendra Kumar (2023), using Government of India securities data, find that on-the-run securities and bonds are associated with significant higher liquidity. Deuskar and Johnson (2021)show that market liquidity is driven majorly by primary dealers' short-term funding capacity rather than by the broader monetary-policy stance.Dua and Raje (2014)reassures the broader components of Indian G-Sec yields, including liquidity proxies apart from the macroeconomic fundamentals. All these studies did not deal with whether the on-the-run premium changed after India's 2024 global bond index inclusion, the very research the gap this paper deals with.

Data and Methodology

Data and Sample

The current study uses daily secondary-market G-Sec valuation yields published by Financial Benchmarks India Ltd., which reports yield-to-maturity for every outstanding Government of India security. The sample window ranges from April 2, 2024 to November 29, 2024 (158 trading days for the 5- and 10-year tenors; 152 for the 14-year tenor, whose on-the-run security was issued on April 12, 2024). This event-study design is centred on India's phased entry into the JPMorgan GBI-EM Global Diversified index with effect from June 28, 2024. The window seems asymmetric as it covers three months of pre-event data and five months of post-event data. This is intentional to give the post-inclusion period sufficient statistical power. For each of the 5-, 10- and 14-year tenors, the RBI-designated benchmark (on-the-run) security was identified from dealer market reports and RBI auction announcements, and matched against a comparable off-the-run security of similar residual maturity. India VIX (NSE) provides a daily market-stress control. Sample construction is detailed further in Section 3.4.

Identifying the Benchmark Securities

For 10-year period, 7.10% GS 2034 was used as benchmark. This benchmark security, the unchanged benchmark throughout the sample window was matched against the 7.18% GS 2033 as the off-the-run comparative security

For the 14-year point, the 7.23% GS 2039 on-the-run security was compared against the off the run 6.83% GS 2039.

The 5-year tenor experienced a benchmark switch within the sample. The 7.10% GS 2029 issued 2022 was on-the-runupto May 30, 2024, after which a re-issued 7.04% GS 2029 took over as benchmark. For both periods, the most comparableoff the run security was 7.17% GS 2030.

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Hypotheses

1. H1: On-the-run G-Secs trade at a statistically significant yield discount relative to maturity matched off-the-run bonds.
2. H2: The on-the-run discount narrowed significantly following India's 2024 global bond index inclusion.

Empirical Models

Model 1 – spread test, where Spread (in basis points) is the off-the-run yield - on-the-run yield for maturity-matched pairs

$Spread\_t = \alpha + \varepsilon\_t$; H1 supported if $\alpha > 0$ and significant

With this test we are calculation average value of spread and verifying that is this average different from zero.

As daily yield spreads are serially correlated, Newey-West standard errors with 5 lags are used throughout rather than plain OLS standard errors.

Model 2 – index-inclusion event test, with Dpost = 1 from the effective inclusion date (June 28, 2024) onward, and India VIX included as a market-stress control:

$Spread\_t = \alpha 0 + \alpha 1\ Dpost + \alpha 2\ VIX\_t + \varepsilon\_t$

This is a before-and-after comparison built into a single regression equation. This gives a direct significance test on the change itself. α0 is the average spread before the index-inclusion date; α1 is how much the average spread shifted after that date, holding the constant VIX control. A significant negative α1 means the premium genuinely narrowed after foreign inflows arrived, supporting H2. A Chow test splits the sample at the event date and compares the pooled versus split-sample and the residual sum of squares is reported alongside α1. This is a formal check that June 28, 2024 represents a genuine structural break in the Spread t.

Both models are estimated separately for the 5-, 10- and 14-year tenors to check consistency across the curve.

Results

Table below reports the results of Models 1 and 2 for all three tenors, which is estimated on the full 158-day (152 for 14-year) sample data.

Tenor	N	α (bps)	t-stat	α1 post-inclusion (bps)	t-stat	Chow F
5-year	158	3.60	9.94	+2.52	3.98	41.97
10-year	158	3.50	13.95	−1.58	−4.53	41.47
14-year	152	1.77	5.13	−0.93	−1.23	13.16

α is the average on-the-run discount over the full window, in basis points, positive and significant across all three tenors (t-statistics of 5.1 to 14.0, all well above the ~1.96 significance threshold), which is the evidence for H1. α1 is the estimated shift in that discount after the June 28, 2024 index-inclusion date, a negative, significant α1 (as seen for the 10-year tenor) supports H2, while an insignificant α1 (14-year) means no reliable change was detected, and a significant positive α1 (5-year) runs in the opposite direction to H2's prediction. The Chow F-statistic here tests whether June 28, 2024 is a genuine structural break in the series, with values above approximately 3.0 indicating a statistically significant break. Results confirm that all three tenors clear this threshold.

The Chow F-statistic follows an F-distribution with (k, n−2k) degrees of freedom in this case k=2 (intercept and VIX coefficient), and n is the sample size (158 or 152). For these degrees-of-freedom combination, standard statistical tables give a **critical value around 3.0** at 5% significance level.

H1: Does the on-the-run discount exist?
H1 is consistent. As compared to off the run securities, on-the-run G-Secs are traded at a statistically significant yield discount at all three tenors. Difference is 3.60 basis points at the 5-year point, 3.50 basis points at the 10-year point, and 1.77 basis points at the 14-year point. For all three points, t-statistics are ranging from 5.1 to 14.0 exceeding conventional significance thresholds. This result is consistent with the international evidence on Treasury on-the-run premia (Krishnamurthy, 2002; Pasquariello & Vega, 2009) and Indian evidence that on-the-run securitiesare associated with materially higher liquidity (Dayanandan, Chander & Rajendra Kumar, 2023).

H2: Did the discount narrow after index inclusion?
The results for H2 are mixed across different tenors.
At the 10-year point, the discount narrowed by a statistically significant 1.58 basis points following the index-inclusion date ($t = -4.53$). Further, with a Chow F-statistic of 41.47 also supports that June 28, 2024 is a genuine structural break point which is also evident from the fact that the foreign portfolio inflows deepened liquidity in the benchmark issue specifically after index inclusion.

The 14-year result is more interesting than a simple yes or no answer. The Chow test clearly shows something changed around the event date, as the F-statistic of 13.16 is well above the threshold for indicating a structural break. But when we look further, the picture gets confusing, as the $\alpha 1$ coefficient itself, at −0.93 basis points, isn't statistically significant ($t = -1.23$). to present it differently, the data tells us the 14-year relationship shifted, but not in a particular sense model is built to detect.
These two results suggest that something really changed in the 14-year On the run versus Off the run relationship around June 2024, but not in the specific form this model tests for: a simple, constant shift in the mean spread. This should be marked as a direction for further investigation rather than treated as either to support or reject H2 at the 14-year point.

At the 5-year point, $\alpha 1$ is significant but positive (+2.52 bps, $t = 3.98$) as is on the opposite sign to H2's prediction. This result should not be read as seen intutuve, as the 5-year tenor experienced a benchmark switch on May 31, 2024, just four weeks before the index-inclusion event date. The Chow F-statistic of 41.97, the largest of the three tenors, is consistent with a genuine structural break around this period but the observations are likely dominated by the benchmark switch rather than by index inclusion. The 5-year result is therefore treated as inconclusive with respect to H2, and should be dealt as a design limitation.

Conclusion
Using daily FBIL valuation yields matched into on the run versus off the run pairs across the 5, 10 and 14year tenors over an eight-month period, H1 is strongly consistent at all three tenors, proving on-the-run discounts of 1.8 to 3.6 basis points. H2 receives support at the 10-year point, where the discount narrowed significantly after index inclusion.

The 14-year point shows a genuine structural break at the event date without a significant mean-shift coefficient, confused result marked for further investigation rather than a clear judgement on H2. The 5-year result remains inconclusive with respect to H2 because of coincidental benchmark switch.

Supports that June 28, 2024 is a genuine structural break point which is also evident from the fact that the foreign portfolio inflows deepened liquidity in the benchmark issue specifically after index inclusion.

The 10-year result speaks directly to the pricing effects of India's deepening integration with global fixed-income capital flows, suggesting foreign inflows following index inclusion had a measurable, and increasingly well-identified, liquidity-deepening effect concentrated in the most heavily traded point on the curve.

Limitation of the Study Includes Two Major Items

First, the 14 years tenor results suggest that something really changed in on the run versus off the run relationship around June 2024, but not in the specific form this model was expecting “a simple and a constant shift in the mean spread”. A rolling-window specification may be used in future studies to overcome this issue. Second, the study was targeted to the effects of index inclusion but the benchmark switch happened close together making it very difficult to tell which one is actually driving the change we see in the data. This can be dealt in further studies, with different research design including a broader sample period pre and post index inclusion.

References

1. Amihud, Y., & Mendelson, H. (1991). Liquidity, maturity, and the yields on U.S. Treasury securities. The Journal of Finance, 46(4), 1411–1425.
2. Dayanandan, A., Chander, J., & Rajendra Kumar, N. R. V. V. M. K. (2023). Size and liquidity of government securities in India. Indian Economic Review, 58(1), 71–90.
3. Deuskar, P., & Johnson, T. C. (2021). Funding liquidity and market liquidity in government bonds. Journal of Banking & Finance, 129, 106167.
4. Dua, P., & Raje, N. (2014). Determinants of yields on government securities in India. Margin: The Journal of Applied Economic Research, 8(4), 375–400.
5. Favero, C., Pagano, M., & von Thadden, E.-L. (2010). How does liquidity affect government bond yields? Journal of Financial and Quantitative Analysis, 45(1), 107–134.
6. Fleming, M. J. (2002). Are larger Treasury issues more liquid? Evidence from bill reopenings. Journal of Money, Credit and Banking, 34(3), 707–735.
7. Fleming, M. J., &Remolona, E. M. (1999). Price formation and liquidity in the U.S. Treasury market: The response to public information. The Journal of Finance, 54(5), 1901–1915.
8. Goyenko, R., Subramanian, A., & Ukhov, A. (2011). The term structure of bond market liquidity and its implications for expected bond returns. Journal of Financial and Quantitative Analysis, 46(1), 111–139.
9. Krishnamurthy, A. (2002). The bond/old-bond spread. Journal of Financial Economics, 66(2–3), 463–506.
10. Long staff, F. A. (2004). The flight-to-liquidity premium in U.S. Treasury bond prices. The Journal of Business, 77(3), 511–526.
11. Pasquariello, P., & Vega, C. (2009). The on-the-run liquidity phenomenon. Journal of Financial Economics, 92(1), 1–24.
12. Warga, A. (1992). Bond returns, liquidity, and missing data bias. Journal of Financial and Quantitative Analysis, 27(4), 605–617.