Centrus

Civil Aviation Authority

CAA – Cost of Inflation-Linked Debt

November 2023



TREASURY & DERIVATIVES | CAPITAL RAISING | FINANCIAL PLANNING & STRATEGY | ASSET MANAGEMENT

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Executive Summary

Purpose

- The Civil Aviation Authority (CAA) has asked Centrus to examine whether an issuer pays an additional issuance premium when issuing Inflation-Linked (IL) bonds compared to fixed rate nominal bonds

Background

- There are several theoretical reasons as to why IL debt should command a premium over nominal debt in capital markets:
    - **IL bond duration** is longer - inflation is rolled up and paid at maturity meaning IL bond investors capital is outstanding for longer
    - **Illiquidity premium -** IL corporate bonds trade far less frequently than fixed rate bonds
    - **Supply and demand -** despite appetite from pension funds for IL bonds, investors often opt for gilts or swaps rather than IL corporate bonds

Conclusion

- The analysed data implies that there is a **premium in the range of 10 – 20 basis points (bps) for IL bond issues**
- However, this needs to be considered in the context of the following:
    - **The data set is small** – only 17 pairwise comparisons were viable given the lack of strong comparable examples
    - For context, based on the issuers sampled, there are 90 inflation linked bonds outstanding meaning we have only have a comparable fixed rate bond data point for around 20% of these
    - Of these pairwise comparisons, **most bonds were not issued on the same date**. While we have tried to control for this using the iBoxx index, the lack of comparability is a constraining factor in the data set
- In practice, **IL public corporate bond issuances have recently been significantly smaller than fixed rate** and volumes are very low (e.g. for the issuers sampled we observed that inflation linked bond issuance is 87% lower from 2018-2023 compared to 2005-2010)
- Private market institutional investors are more likely to buy and hold to maturity to match specific liabilities, **as such IL debt is often issued privately and in smaller size** where this offers issuers value vs alternative sources of funds
- There is **also an active IL swap market** and issuers often find it more cost effective to borrow fixed rate debt and enter inflation swaps which in practice often leads to a lower cost to issuers than issuing an IL bond

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Methodology

We have undertaken a comparison of IL bonds compared to fixed rate bonds of various issuers including Heathrow and other investment grade regulated entities

1. Examining Heathrow Airport Limited's (HAL) Class A IL vs nominal issuances

- Looking at Heathrow's Class A issuances since 2008 we have examined issue spread of nominal bonds in comparison to iBoxx Average A and BBB 10Y+ index vs issue premium of IL bonds in comparison to iBoxx Average A and BBB 10Y+ index
- For most nominal bonds issue spread is available in Bloomberg
- For IL bonds, we calculate issue spread by:
  - Taking the yield of the HAL IL bond as at the time of issuance (if issue yield not available we take first available trading yield)
  - Taking the yield of a similar tenor UK inflation linked gilt (UKTI) bond as of the date of issuance
  - Subtracting the yield of the UKTI bond from the yield of the HAL IL bond

2. Evaluating other regulated utilities IL vs nominal issuances via pairwise comparison

- Centrus has looked at other IL issuers in the regulated utility market such as: Network Rail, National Grid, United Utilities, Thames Water, Cadent, Yorkshire and Severn Trent to expand the limited dataset in order to investigate whether there is clear evidence of an IL premium
- In assessing this, we compare the issue spread of similar tenor issuances of one IL bond vs one nominal bond of the same regulated utility with maturity dates within 2 years of each other
- Issue spreads of both nominal and IL bonds are calculated as per the method above

Source: Markit iBoxx, Bloomberg

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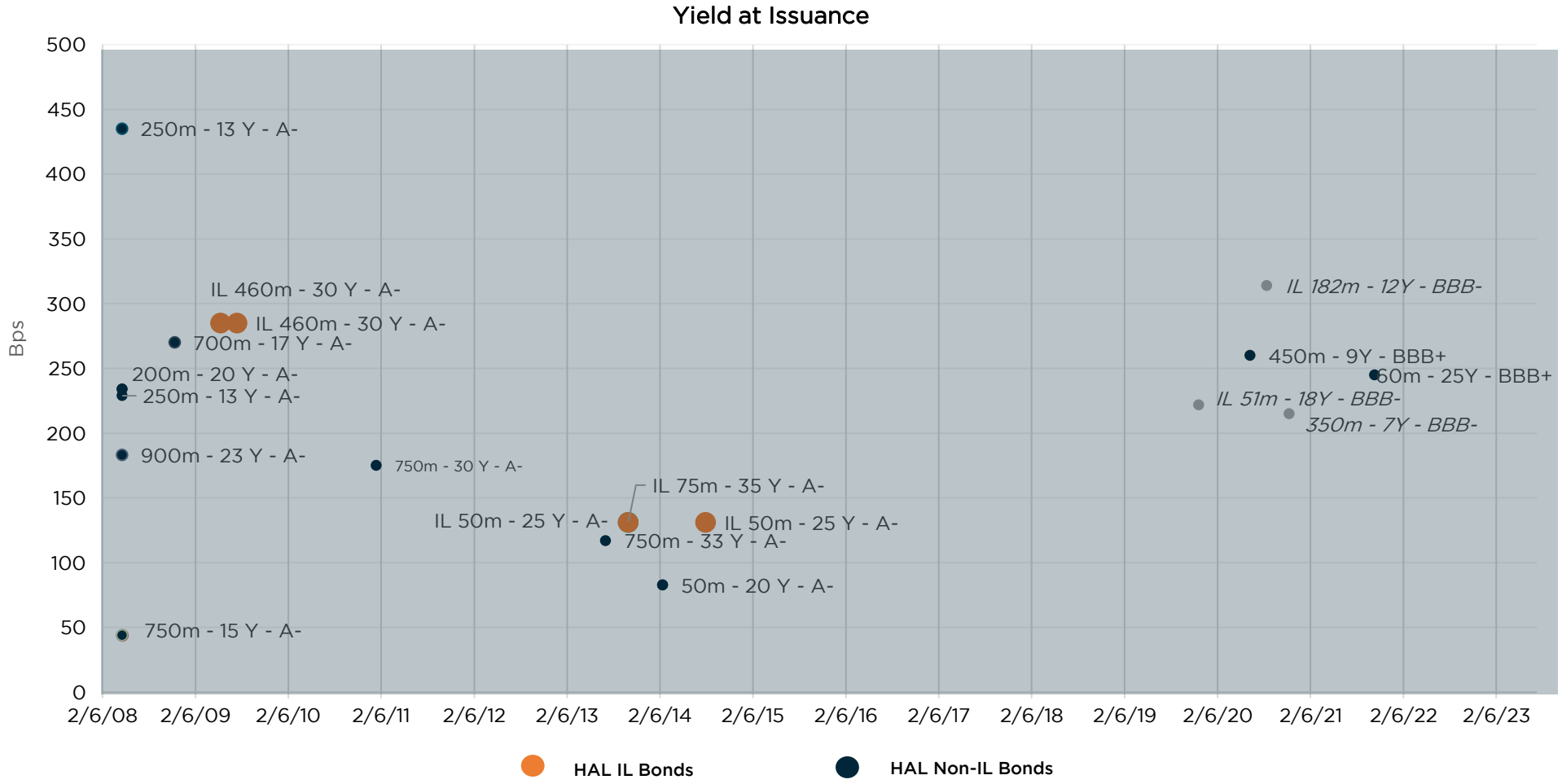
Inflation-linked vs fixed rate bonds | Heathrow

When comparing Heathrow IL bond issue spreads vs nominal bond spread, we observe that IL Class A bonds average 3bps premium to their nominal bonds. On the basis of a very small data set, the Class B IL bonds issued more recently show a 52bps premium – we have not considered the class Bs any further on the basis that they are not comparable to the class As



Source: Markit iBoxx, Bloomberg

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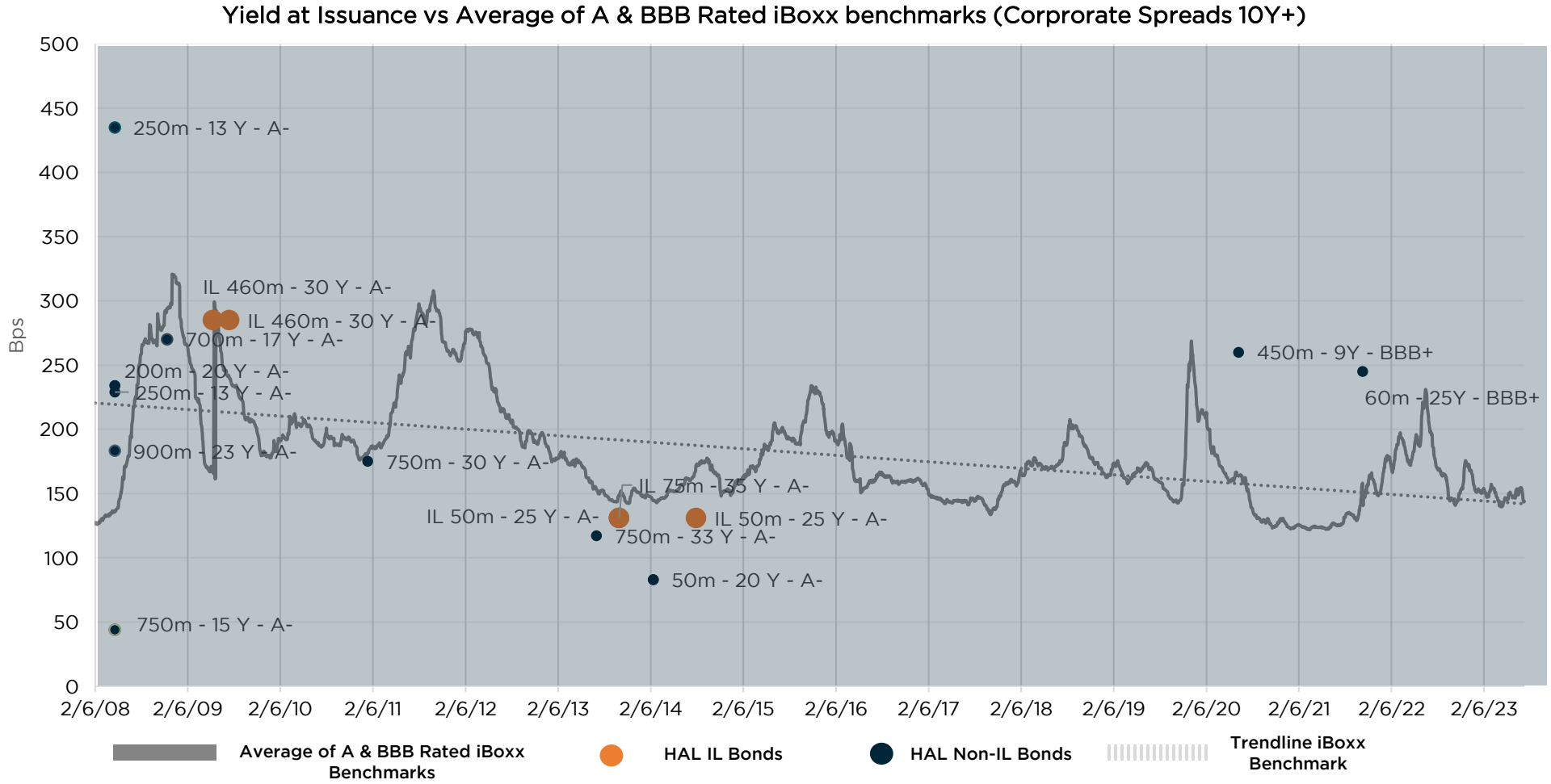
Inflation-linked vs fixed rate bonds | Heathrow

To adjust for these bonds being issued on different issuance dates, we compared the bonds to the relevant iBoxx index and observe that Heathrow's IL bonds have been issued at an average 2bps premium to iBoxx above their nominal bonds, again implying a small IL premium



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Inflation-linked vs fixed rate bonds | Other regulated utilities

Widening the sample to regulated infrastructure issuers shows that IL bonds price with a greater spread than equivalent fixed rate bonds. Comparators were selected based on issuances of fixed and IL debt that have a similar remaining tenor to maturity (within 2 years)

	Inflation-linked bonds	Notional £m	Final Maturity	Rating (Moody's / S&P / Fitch)	Coupon	Inflation Linked	Benchmark Gilt	Yield Spread (bps)	Spread differential (IL - Fixed) (bps)
United Utilities	AL559977 Corp	38	09/12/2031	A3 / - / A - u	0.01	Y	UKTI 0.125 2029	116	
	AL562406 Corp	20	09/12/2031	A3 / - / A - u	0.25	Y	UKTI 0.125 2029	120	+22
	AX076568 Corp	350	12/02/2031	A3 / - / A - u	2.63	N		94	
	AZ640072 Corp	100	12/02/2031	-	2.63	N		97	
	BK590696 Corp	125	27/07/2040	A3 / BBB+ / A-	0.01	Y	UKTI 0 ⅝ 2040	122	+14
	BJ736470 Corp	300	03/06/2042	A3 / BBB+ / A-	1.88	N		108	
Network Rail	EF195824 Corp	300	26/01/2035	Aa2 / - / AA	1.65	Y	UKTI 2.00 2035	13	-18
	ED700946 Corp	1,250	29/11/2035	Aa2 / - / AA	4.75	N		31	
	EG422508 Corp	3,940	22/11/2037	Aa2 / - / AA	1.38	Y	UKTI 1.125 2037	26	+2
	EG884547 Corp	100	08/06/2038	Aa2 / - / AA	4.65	N		24	
	EG582452 Corp	3.79	22/11/2027	Aa3 / AA / AA-	1.75	Y	UKTI 1 ¼ 2027	25	-28
	EF473491 Corp	140	02/06/2026	Aa3 / AA / AA-	4.57	N		53	
National Grid	EC419201 Corp	70	27/07/2030	A3 /A- /A	3.59	Y	UKTI 4.125 2030	102	+6
	EH677840 Corp	380	13/01/2031	A3 /A- /A	7.38	N		96	
	EF147108 Corp	75	01/03/2035	A3 /A- /A	5	N		140	-11
	ED995569 Corp	50	28/06/2035	A3 /A- /A	2.23	Y	UKTI 2035	130	
	EG987929 Corp	25	26/10/2037	A3 /A- /A	1.81	Y		159	
	EH351650 Corp	457	13/05/2038	A3 /A- /A	6.00	N		103	+56
	EI689037 Corp	140	01/06/2043	Baa1 / BBB+ / -	2.67	Y	UKTI 0 ⅝ 2042	162	+17
	EI495551 Corp	250	01/03/2035	Baa1 / BBB+ / -	5	N		145	
Thames Water	AN348079 Corp	250	03/05/2027	Baa3	2.88	N		145	+28
	JV274582 Corp	45	21/12/2027	A3	0.72	Y	UKTI 1.125 2027	117	
	EJ255735 Corp	300	03/07/2034	A3	4.38	N		149	+12
	JV272673 Corp	40	18/12/2034	A3	0.75	Y	UKTI 0.75 2034	161	
	EG774580 Corp	200	28/08/2057	A3	1.77	Y	UKTI 0.125 2058	199	14
	AL704058 Corp	400	09/04/2058	A3	7.74	N		185	
	EJ289120 Corp	40	12/10/2045	A3	1.974	Y	UKTI 0.125 2044	205	55
	GB00B128DP45	300	04/06/2046	A3	4.625	N		149	
Yorkshire Water	EH918805 Corp	128	29/07/2033	Baa2 / A- / A-	3.31	Y	UKTI 1 ¼ 2032	131	-29
	ZS152909 Corp	725	18/04/2041	Baa2 / A- / A-	2.75	N		160	
Cadent	EG331694 Corp	100	02/05/2039	Baa1 / BBB+ / -	2.31	Y	UKTI 1 ⅛ 2037	120	-28
	QZ542968 Corp	800	22/09/2046	Baa1 / BBB+ / A-	2.75	N		148	
Severn Trent	BQ589468 Corp	50	23/07/2039	Baa1 / BBB+ / A-	0.01	Y	UKTI 0 ⅛ 2039	127	+9
	ZI815385 Corp	50	14/09/2042	-	6.22	N		119	

When conducting the simple average, the differential across the dataset is showing that IL debt spread is 5bps higher than on nominal debt. This increases to c.10bps when we remove Network Rail on the basis that it benefits from a Government guarantee

Source: Markit iBoxx, Bloomberg

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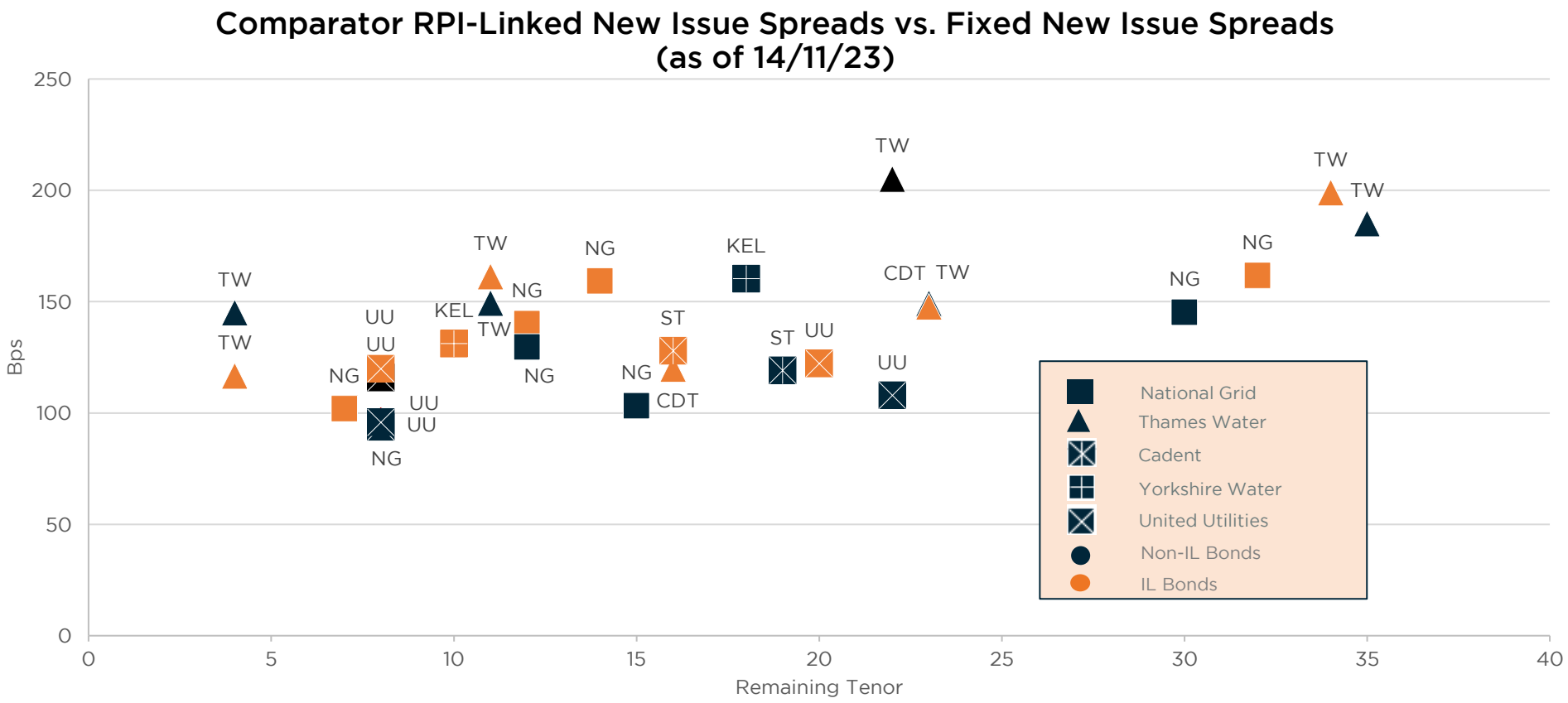
Inflation-linked vs fixed rate bonds | Other regulated utilities

After removing Network Rail from the data set, we re-calculated the average spread based on weighting towards the tenor of the bonds issued (effectively giving more weight to longer tenor bonds)



In this analysis the spread differential across the dataset is showing that IL debt is issued with a spread on average 13bps higher than nominal debt

Source: Markit iBoxx, Bloomberg

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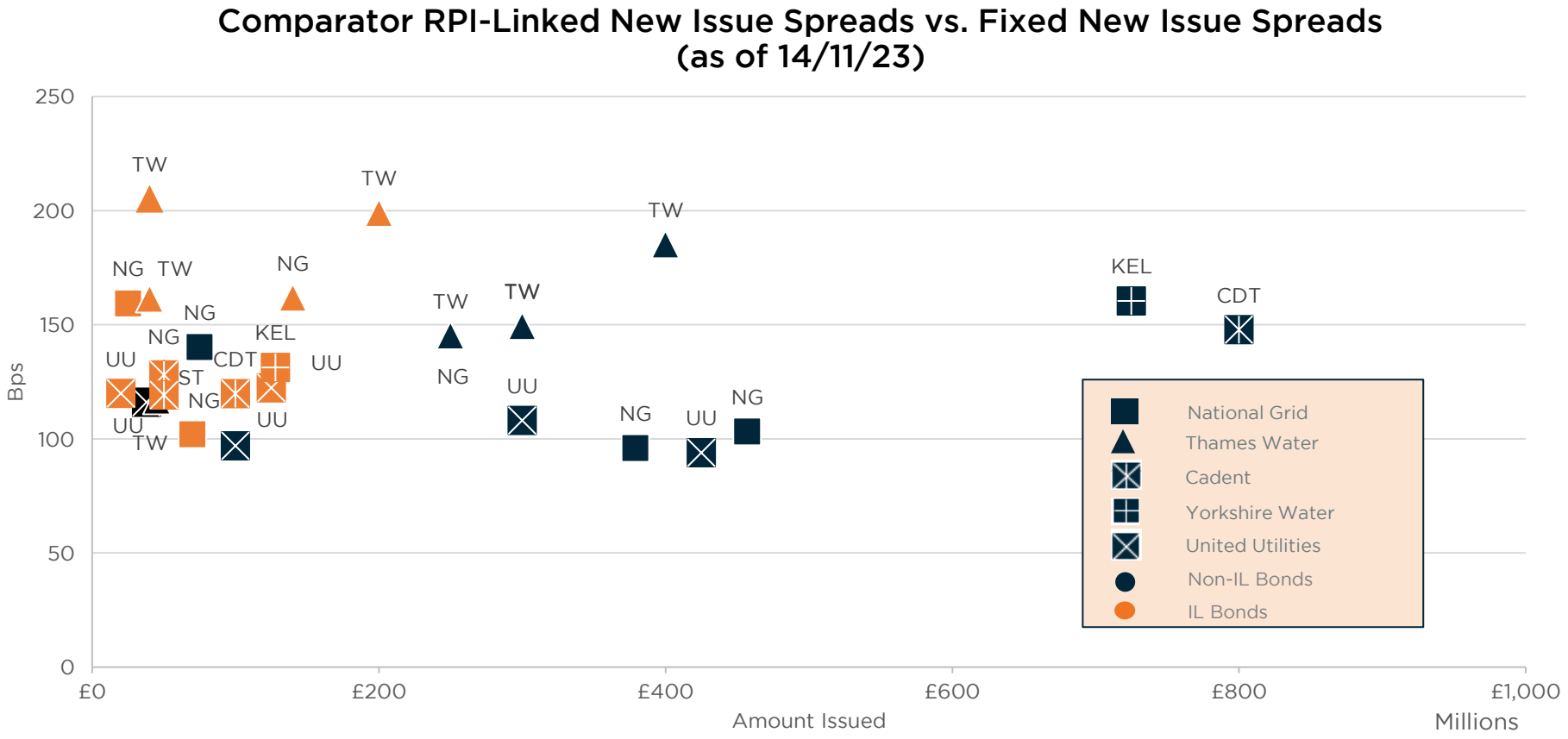
Inflation-linked vs fixed rate bonds | Other regulated utilities

When we weight the average spread levels for issuance volume of IL and nominal bonds the spread differential between the IL and nominal datasets show that IL debt is issued 11bps higher than nominal debt on average



It is interesting to observe that IL bonds issuance amounts are a fraction of the size of the comparable fixed rate bond issues in the sample set

Source: Markit iBoxx, Bloomberg

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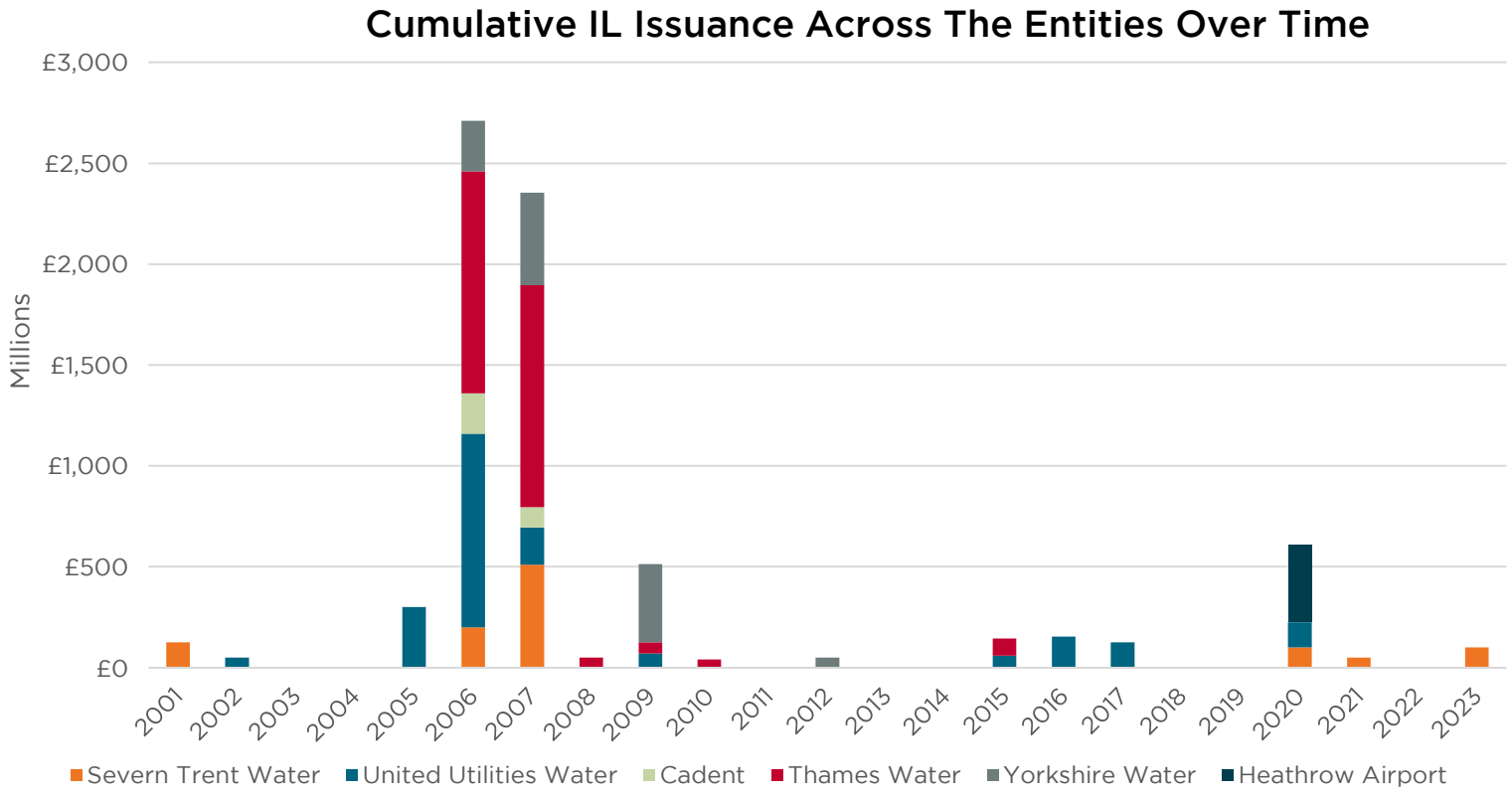
Inflation-linked bond issues | Other regulated utilities

Looking at the distribution of IL bond issuances for regulated utilities, we observe that there are not many IL bond issuances beyond 2007 suggesting that corporates either issue IL in the private market, or they use the IL swap market to implement their IL liabilities



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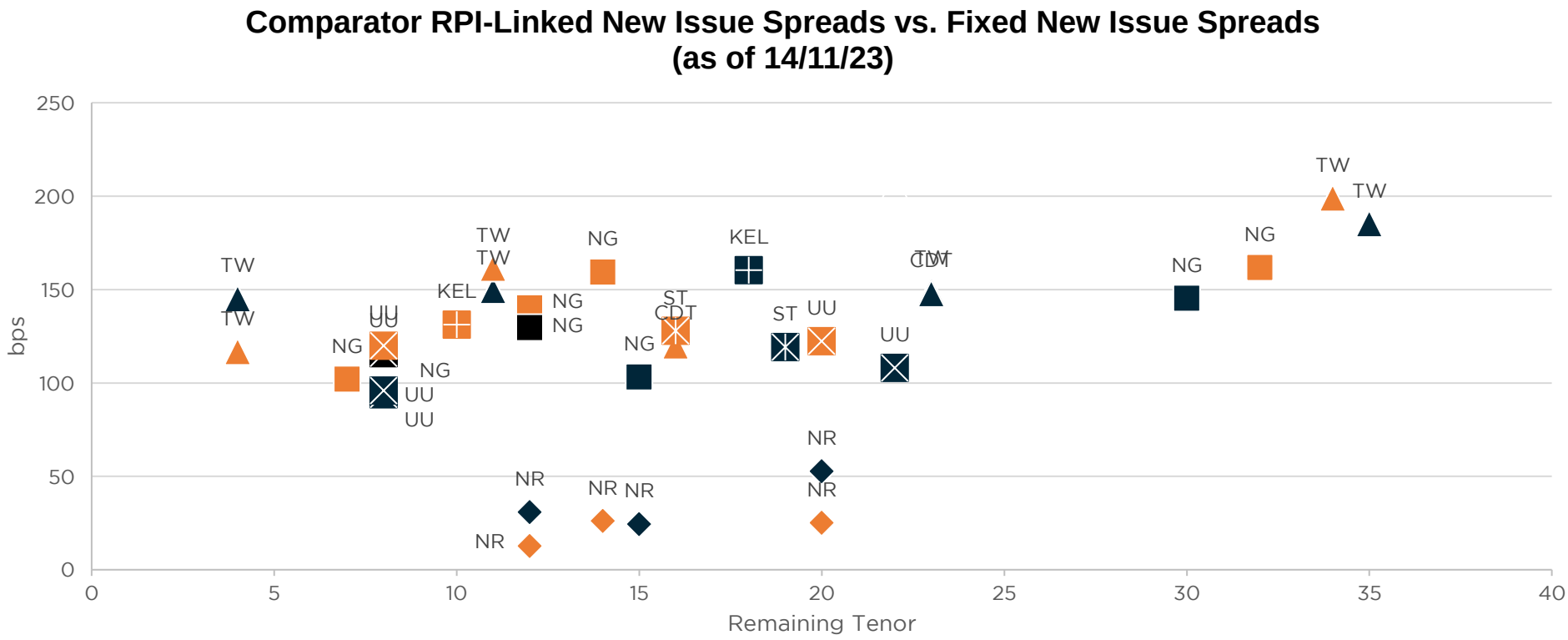
Index-linked debt premium (New Issue)



- Widening the sample to comparator corporates (similarly rated, regulated corporates), index-linked bonds trade with a greater spread than equivalent fixed bonds. Comparators were selected based on issuances of fixed and index-linked debt that have a similar remaining tenor to maturity (see following slide for supporting data).

Index Linked Bonds (Bloomberg Sourced) Non-Index Linked Bonds (Bloomberg Sourced)

Source: Markit iBoxx, Bloomberg

**When data not available, closest available date used*

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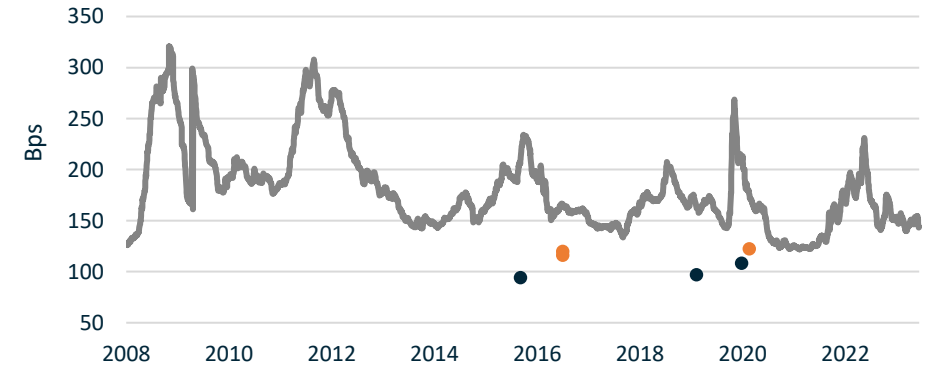
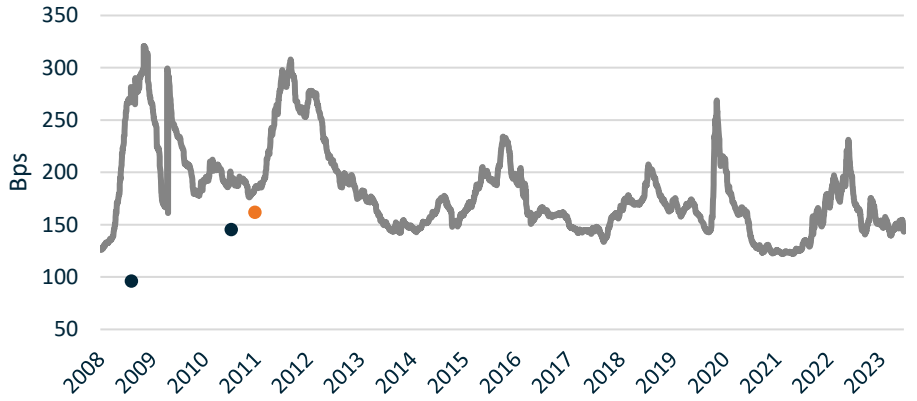
Inflation-linked vs fixed rate bonds | Other regulated utilities

When adjusting for iBoxx, we observe that IL bond issues have a premium of 28 bps over nominal bonds. On investigation this is being caused by material out-performance of a small number of nominal bonds issued during spikes in the iBoxx index between 2009 and 2016

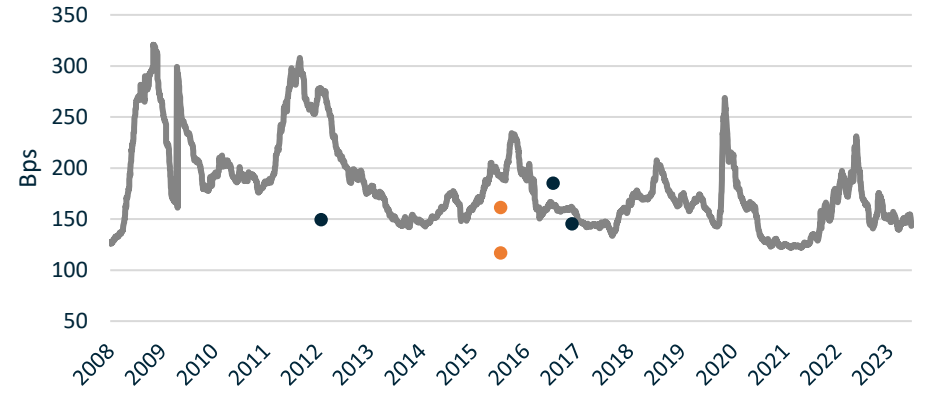
United Utilities



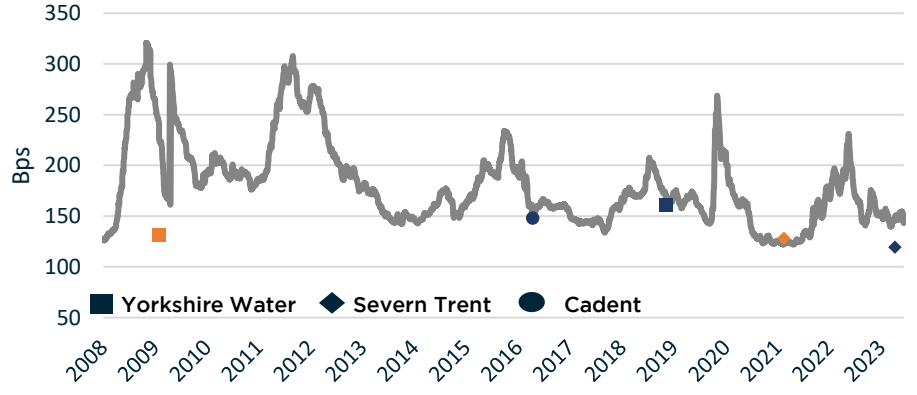
National Grid



Thames Water



Yorkshire Water, Cadent, Severn Trent Water



Average of A & BBB Rated iBoxx Benchmarks IL Bonds Non-IL Bonds

Source: Markit iBoxx, Bloomberg

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