

J.P. Morgan Housing Association Total Return Index

Methodology and Factsheet

Highlights

The J.P. Morgan Housing Association Total Return Index (HATTIE) is designed to track UK Housing Association (HA) issued fixed rate secured bonds denominated in sterling. HAs are primarily not-for-profit social landlords or organizations, that provide homes and support for ~6mm people in England across an aggregate portfolio of ~2.5mm homes, with surpluses being reinvested back into housing. They are regulated by the Regulator of Social Housing (RSH), a non-departmental public entity promoting a viable, efficient, and well-governed social housing sector. The HATTIE provides a comprehensive view into the UK Housing Association issued bond market across maturity sectors and ratings, since its inception on December 31st, 2012.

Index Criteria

Characteristics	J.P. Morgan Housing Association Total Return Index
Eligible currencies	GBP
Minimum Amount Outstanding	GBP: £100MM
Minimum Maturity	To enter: Bonds should have minimum 2 years remaining to maturity To remain: Bonds remain eligible until 6 months remaining to maturity
Issuer	UK Housing Association
Country	United Kingdom
Instrument Type	Housing Association issued debt
Coupon Type	Fixed rate
Credit Rating	The minimum credit rating for inclusion in investment grade indices is BBB-/Baa3/BBB-

Source: J.P. Morgan

Index Characteristics and Methodology

Characteristics	J.P. Morgan Housing Association Total Return Index
Inception Date	December 31 st , 2012
Prices	Mid prices from Pricing Direct
Weighting Scheme	Market Cap Weighted
FX Rates	All FX rates used, including for hedged/unhedged returns, are as of 4pm London time provided by WM/Reuters
Rebalance	Rebalances on the last weekday of the month
Holiday Calendar	Index levels are available on all weekdays
Treatment for Defaulted/Called Securities	Defaulted securities are removed at the subsequent rebalance Called securities are removed on the month end rebalance before the called date if the call is announced before the month end & if not, will be removed on the subsequent rebalance
Credit Rating	Instrument rating is assigned using the middle rating of S&P, Moody's and Fitch. If only two ratings are available, the lower rating is used
Coupon Treatment	All coupons received are immediately reinvested into the index
Hedging Strategy	Assumes a 1-month currency forward position that begins on rebalance day and ends on next rebalance day

Source: J.P. Morgan

Index Performance

	HATTIE*	GCI IG GBP	GCI IG A GBP	GCI IG GBP 10-20	GCI IG GBP 20-30
TR 2013	1.4%	1.6%	0.7%	-0.8%	1.0%
TR 2014	19.1%	12.5%	13.3%	16.2%	18.6%
TR 2015	-0.6%	0.5%	0.5%	0.0%	-1.2%
TR 2016	18.3%	12.1%	12.8%	14.6%	19.7%
TR 2017	4.7%	4.8%	4.7%	5.3%	6.1%
TR 2018	-1.8%	-2.2%	-1.8%	-2.2%	-4.2%
TR 2019	15.1%	11.1%	11.1%	13.3%	17.3%
TR 2020	15.4%	9.1%	9.1%	12.0%	12.5%
TR 2021	-4.4%	-3.1%	-4.0%	-5.1%	-3.2%
TR 2022	-34.0%	-18.4%	-19.6%	-26.0%	-29.2%
YTD 2023	-2.5%	1.1%	0.6%	-1.1%	-3.4%
Cumulative Return	19.2%	27.9%	25.1%	20.0%	25.7%
Annualized Return	1.6%	2.3%	2.1%	1.7%	2.2%
Annualized Volatility	11.1%	8.7%	9.1%	8.3%	9.9%
Sharpe Ratio	0.14	0.27	0.23	0.21	0.22
Yield	6.0%	6.3%	6.3%	6.2%	6.7%
Duration	11.3	6.2	6.1	9.8	11.7
Coupon	2.0%	3.4%	3.4%	4.0%	2.9%

Source: J.P. Morgan, as of 30th Sept 2023. * Returns in USD

Defining Index Universe

Eligibility for the index will be determined on a continuous basis by monitoring the index criteria. Any changes to the composition or eligibility will be notified prior to rebalance with an estimated schedule. Countries of risk for the instruments in the index will be determined based upon the below considerations:

1. The country with the largest source of revenue. Guarantees by other entities including subsidiaries or holding companies in other countries will also be considered.
2. The headquarters or the location of the issuer's majority assets will also be considered.

New Issue Timing

A new issue that meets the index criteria is added at the month-end rebalancing provided its settlement date falls before the last business day of the month.

If the announcement is made for a bond to be called, it is removed the month-end prior to its call date. If an announcement is not made in time for the bond to be removed the prior month-end, it will be removed first month end following the announcement.

Appendix

The following is a description of our methodology for calculating aggregate returns at the index level. The returns calculated are total return, price (clean) return, interest (coupon) return, treasury return, spread (excess) return, and spot return.

Total return is a means of representing the economic benefit of holding a security or portfolio position. In its simplest form, it is based on the "cash in/cash out" notion – i.e., what is paid for the security at the initial purchase versus what is received at its sale. The means of calculating the total return on a basket containing various instruments is an extension of the single instrument total return framework.

Index Total Return

The total return is a representative measure of the performance of the underlying instruments between day $t - 1$ and day t . At its most basic, the index total return of a multi-currency portfolio can be explained by five components: price return,

interest return, treasury return, spread return, and spot return. Assume that the portfolio of securities is composed of bonds and markets in proportion to their respective total market value. Market value in this case is calculated using the amount outstanding, as well as the total price inclusive of accrued interest and principal payments. The rate of return for any day can be attributed in one of two ways:

- Using the clean and coupon returns:

$$\text{Total Rate of Return} = (1 + \text{Price Rtn})(1 + \text{Interest Rtn})(1 + \text{Spot Rtn}) - 1$$

- Or, alternatively, using the treasury and excess returns:

$$\text{Total Rate of Return} = (1 + \text{Treasury Rtn})(1 + \text{Interest Rtn})(1 + \text{Spot Rtn}) - 1$$

Analytic	Field Name in DataQuery	Description
Return Analytics		
Total Return	CumTotRet	(see above)
Price Return	StatClnRtnRateMid	(see above)
Interest Return	StatsIntRet	(see above)
Spread Return	StatExcessReturnMid	(see above)
Treasury Return	DailyTsyReturnMid	(see above)
ESG Analytics		
ESG JPM Rank	ESGScore	Proprietary J.P. Morgan computed ESG score
ESG Band	ESGBand	ESG band designation
To Worst Analytics		
Yield (to worst)	StatYldWrstRateMid	The lowest potential Yield on a callable security or the highest potential yield on a puttable security. The corresponding date at which this Yield is realized is referred to as the Worst Date, and is the driver for all other To Worst analytics.
Spread (to worst)	StatStpSprRateMid	The Spread Over the Treasury Zero Curve corresponding to the Worst Date. This is the basis point spread over the Treasury Zero Curve that will discount cash flows such that the Present Value will equal the Settlement Price, reflective of the Worst Date.
Modified Duration (to worst)	YTMModDurToWrstMid	A measure of the change in settlement price for a 100 bps shift in the underlying government bond Cash Coupon Curve and reflective of all cash flows to the Worst Date. It is calculated by shifting the government bond Cash Coupon Curve by 100bps up and down and calculating settlement price under each scenario.
Spread Duration (to worst)	EffSpreadDuration_Wrst	A measure of the change in settlement price for a 100 bps shift in the underlying government bond Zero Coupon Curve and reflective of all cash flows to the Worst Date. It is calculated by shifting the government bond Zero Curves by 100bps up and down and calculating settlement price under each scenario.
Spread Convexity (to worst)	EffSpreadConvexity_Wrst	A measure of the sensitivity of Spread Duration to a 100 bps shift in the underlying government bond Zero Coupon Curve and reflective of all cash flows to the Worst Date. It is calculated by shifting the government bond Zero Curves by 100 bps up and down and calculating settlement price under each scenario.
Average Life (to worst)	Avg_Life_Wrst	Average length of remaining time before the bond's principal is repaid (or when optionality is executed) as measured at the To Worst Date.
Base Analytics		
Index Dirty Price (mid)	StatValStlOrgAmtMid	Dirty mid price including adjustments for amortization and capitalization
Market Value (ESG adj.)	Mkt Cap	Market Value (ESG methodology adjusted)
Face Amount	FaceAmtOS	Amount outstanding
Coupon	AM_ACT_PAY	Current coupon rate
Accrued interest	AM_INT_PRD	Accumulated interest since last payout
Amortization amount	AM_AMORT	Aggregated amortized principal amount
Remaining Maturity (days)	StatsDaysToMat	Number of business days from trade date to maturity date

Current Yield	StatClnRtnRateMid	Current yield
Number of bonds	Num_Bonds	Number of bonds in the index

Global Index Research

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