

JHF No.174 Monthly MBS Issue

Strategic Memorandum DSBE018

FICC Research Dept.

Chief Strategist of Securitization

Koji Matsushita

(81) 3 5555-8778

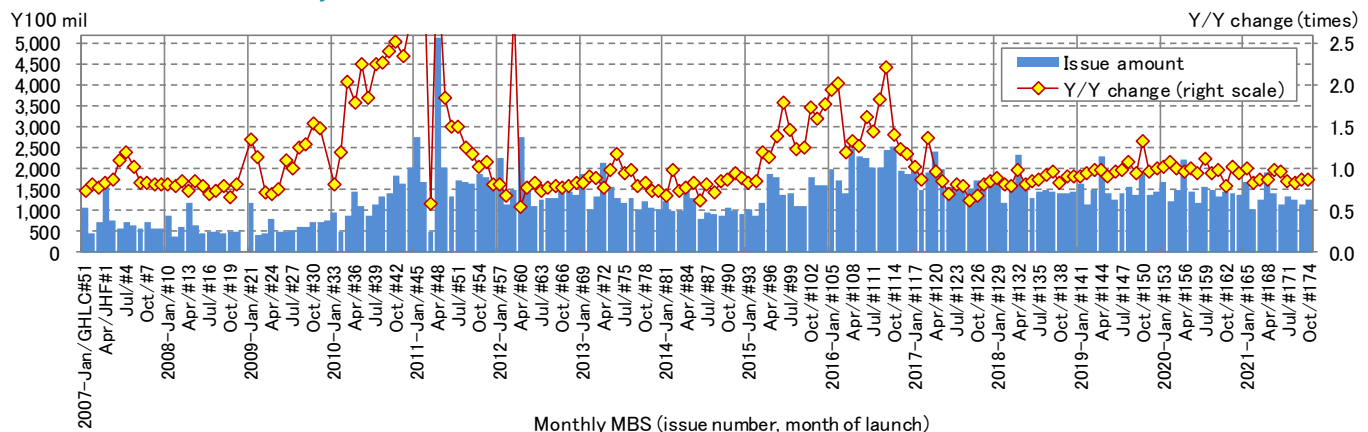
koji1.matsushita@daiwa.co.jp

Daiwa Securities Co. Ltd.

➤ Average age of Flat 35 borrowers was 42, the highest ever

- The Japan Housing Finance Agency (JHF) plans to issue its No. 174 Monthly MBS. The coupon will be set by referencing the yield of the on-the-run 10-year JGB.
- JHF RMBS are issued with home loans as the underlying asset. The assets eligible to be used as collateral for the No. 174 issue are the Y160.0 billion of Flat 35 loans originated in September. Assuming overcollateralization at a credit enhancement ratio of 21.6%, which is what it was the previous issue, the issuance amount will be Y125.5 billion.
- The volume of Flat 35 loans written in September declined 13% in y/y terms. Compared with August, there was a notable increase in condominium purchases, but that can be attributed to seasonality seen every September, and condo purchases declined 6% in y/y terms. The average age of Flat 35 borrowers was 42, the highest ever.
- Based on our prepayment model, we estimate a WAL of 9.72 years (based on 12 October closing prices; same hereinafter). The expected WAL based on the JHF's PSJ Forecast Statistical Data is 9.11 years.
- The No. 173, launched in September, had a launch spread of 29bps and a coupon of 0.33%. Based on the same launch spread, the No. 174 would have a coupon of 0.38% and an OAS of 7.0bps, 0.2bps wider than the previous issue's launch OAS. Based on the No. 173's OAS in the secondary market, the No. 174's coupon is estimated at 0.33% and the launch spread 24bps.
- We think it appropriate that supply and demand will meet at the launch spread of about 29bps. If so, the coupon would be about 0.38%.

Chart: Issue Amount of Monthly MBS



Source: JHF; compiled by Daiwa Securities.

Note: Estimate for No. 174 issue.

Issuance of JHF MBS and Situations of Flat 35

No. 174 to be launched in October

The Japan Housing Finance Agency (JHF) plans to price (launch) its No. 174 MBS this month. Issuance terms are determined by the spread-pricing method, in which a new issue's coupon is set on the launch date by adding a launch spread—which is determined based on investor demand—to the compound yield on a benchmark 10Y JGB (JB364 in this case) at the time of the launch. The launch date is scheduled in mid-October, and the payment date is scheduled on 27 October.

Issuance amount of about Y125 billion

Candidate trust assets for the No. 174 totaled Y160.0 billion, all of which were Flat 35 loans originated in September. The issue is likely to have the highest ratings from S&P and R&I. The issue amount is to be announced on 14 October. If the credit enhancement ratio is unchanged from that for the previous issue at 21.6%, the issue amount is estimated at Y125.5 billion.

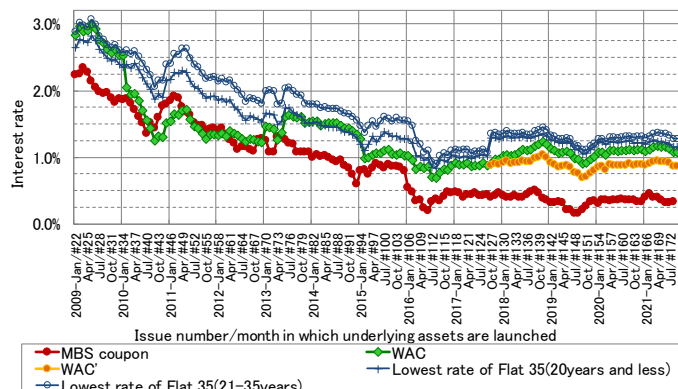
The amount of Flat 35 loans declined 13% y/y in September

The amount of Flat 35 mortgages originated in September declined 13% Y/Y to Y160.0 billion. The lowest retail rate (for 35-year mortgages, including group credit insurance costs) was 1.28%, equal to August and down 0.04ppt from August 2020. The lowest retail rate for Flat 20 loans was 1.15%, which was also equal m/m and down 0.10ppt y/y.

Average age of borrowers is at a record-high

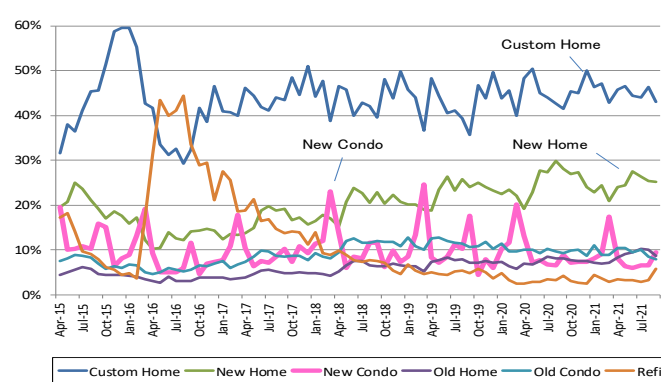
The reason that the volume of loans declined y/y despite the posted mortgage rate declining is probably that housing prices have become less likely to decline commensurate with weakening incomes. We think lowered global competitiveness and pandemic-induced supply chain constraints are also having an impact. By loan purpose, loans to purchase condos grew in m/m terms on the seasonal September increase but declined 6% y/y. The average age of Flat 35 borrowers in September was 42, the highest it has ever been (see pages 6-7).

Chart: Interest Rate of Flat 35 Loans and JHF MBS (monthly trend)



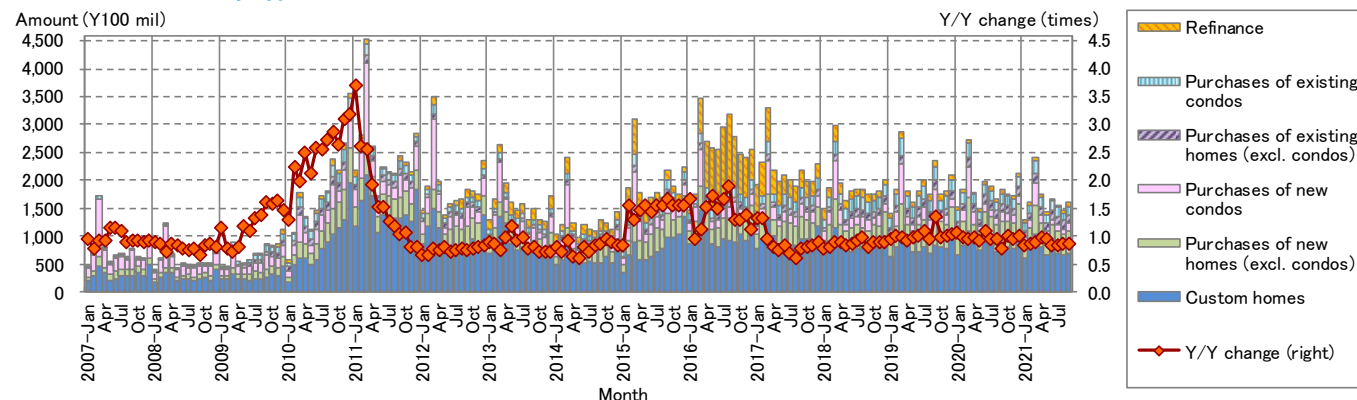
Source: JHF; compiled by Daiwa Securities.

Chart: Type of Loans (%share of Amount of Flat 35 Loans)



Source: JHF; compiled by Daiwa Securities.

Chart: Flat 35 Loans by Type of Loans



Source: JHF; compiled by Daiwa Securities.

Terms for the previous issue

Launch spread of 29bps and coupon of 0.33%

The No. 173 (¥113.9 billion) was launched on 16 September with a coupon of 0.33%. The coupon was determined by adding the launch spread of 29bp on the compound yield of benchmark JB363. The OAS at launch (our estimate; same hereinafter) stood at 6.9bps (0.2bps wider than previous issue) and the YCS was 12.3bps (0.4bps tighter).

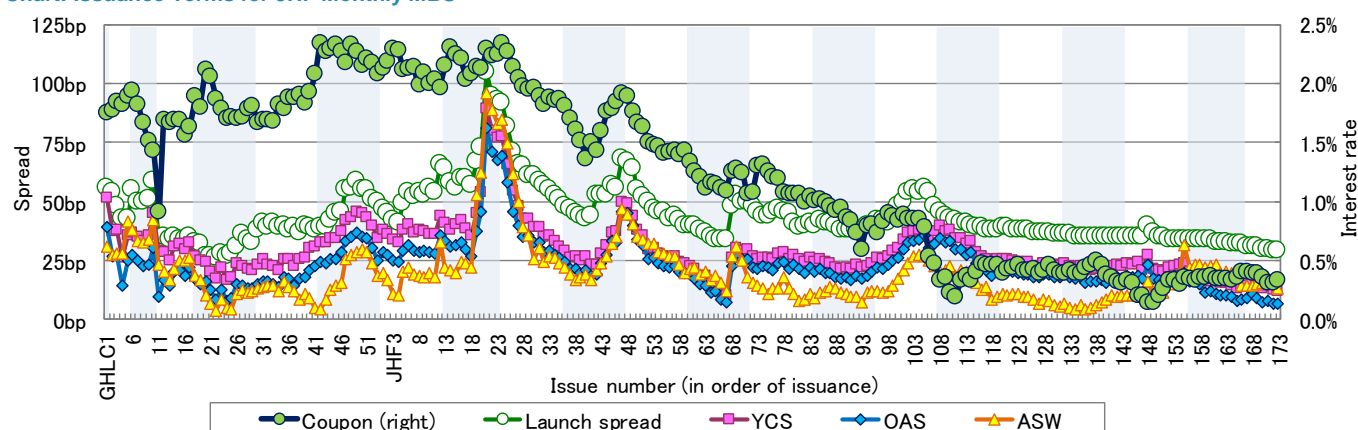
A Reflection of rising JGB yields

Launch spreads showed no change from August. The coupon increased by the same amount as the benchmark JGB yield. Japan's long-term rate was affected by the 10yr Treasury yield, which on inflation worries entered a rising trend from its level below 1.4%. The OAS and YCS changed because the benchmark JGB yield rose more than the yield on other maturities and because the median forecast maturity lengthened slightly relative to the previous issue.

Issue looks cheap relative to the secondary market

The on-the-run bond in the secondary market is trading at an OAS of 2bp, wider than the launch OAS. We attribute this to strong investment demand in the primary market. Surplus demand for the monthly RMBS will ensure the stable supply of Flat 35 loans.

Chart: Issuance Terms for JHF Monthly MBS



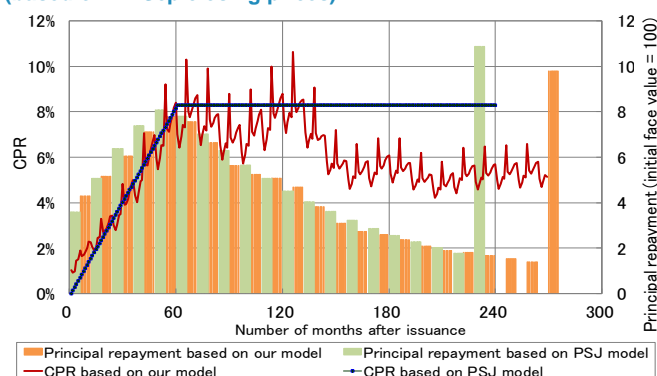
Source: JHF and our estimates.

Note: The background colors indicate different fiscal years.

Different risk premiums depending on expected cash flow distribution

With regard to the pricing of JHF MBS, it should be noted that the risk premium varies depending on the expected cash flow distribution. The expected cash flows of JHF MBS No.167 based on our prepayment model have terms that are somewhat longer than those based on the PSJ Forecast Statistical Data. As a result, YCSs based on our prepayment model are several basis points lower than those based on the PSJ Forecast Statistical Data. Following a minor change to our model in July 2019 we have continued updating our parameters. This had caused a steady lengthening of the forecast maturity at issuance since the No. 147, but this trajectory changed from the No. 165.

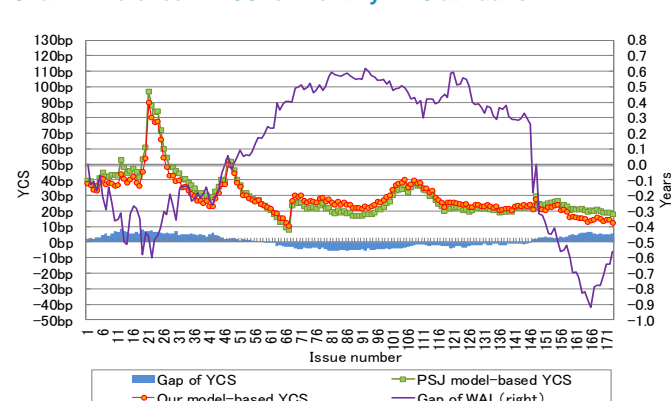
Chart: Expected CPR & Principal Repayment for No. 173 Issue (based on 12 Sep closing prices)



Source: Our estimates.

Note: Although principal repayments are made every month, the graph shows annual repayment totals.

Chart: Difference in YCS for Monthly MBS at Launch



Source: Our estimates.

Cash flow characteristics and issuance terms for No. 174

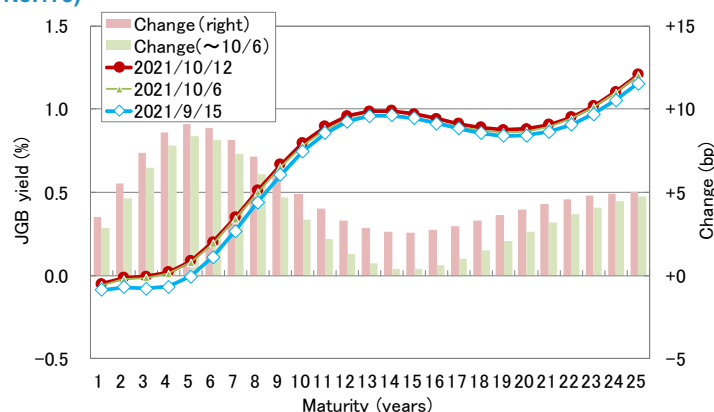
We take a look at the issuance terms for the upcoming issue. Based on expected cash flow using our prepayment model and the PSJ model, we estimate the issuance terms (the coupon and launch spread) and the risk premiums.

Expected maturity of around 9 years

The expected cash flow distribution for the upcoming issue (the chart on the previous page, based on 12 October closing prices; hereinafter the same unless otherwise noted) is about the same as the previous issue (at the time of its launch; same hereinafter).

- Based on our model, the expected WAL is 9.72 years (9.70 years for the previous issue) and the expected final maturity 22.4 years (22.5 years). The PSJ forecast is 7.25% (vs. 7.34% for the previous issue).
- The PSJ Calculation Statistical Value (average) is 8.29% (vs. 8.35% for the previous issue). Accordingly, the expected WAL is 9.11 years (vs. 9.14 years for the previous issue) and the expected final maturity 19.9 years (20.0 years).

Chart: Change in 3Y-Forward Rate (from the day before launch day of No.173)



Source: JHF; compiled by Daiwa Securities.

Note: WAC' means the Weight Average Coupon excl. premiums for JHF group credit life insurance

Based on our model, forecast maturity lengthened only slightly from the previous issue. This is probably owing to rising refinancing rates in each future period and declining incentives to refinance among home loan borrowers, since although there was no change in the average yield of the underlying asset pool, the implied forward rate increased.

The underlying loan pool's WAC (weighted average coupon; see pp. 6-7) is 1.08% and the WAC' 0.86%, equal to the previous issue's.

Chart: Launch Spread Estimates for No. 174 MBS (based on 12 Oct closing prices)

Valuations of JHF_MBS_#174 Pricing(Simulation)										12-Oct-21 (Tokyo Close)
Base Yield: JGB(364G) YTM 0.090 %										
Launch Spread	Coupon	Valuations of Cash Flows							Indications of Previous RMBS Issue (#173)	
		Daiwa Model				PSJ Model				
		Dynamic	Static			PSJ forecast Statistical Data(Ave)				
		OAS	YCS	ASW	ModDur	YCS	ASW	ModDur		
22 bp	0.31 %	-0.1	5.3	5.4	9.499	11.0	9.5	8.761	(Issuance Terms)	
23 bp	0.32 %	0.9	6.3	6.3	9.492	12.0	10.5	8.755	Launch Spread=29bp	
24 bp	0.33 %	1.9	7.3	7.3	9.485	13.0	11.6	8.749	Coupon=0.33%	
25 bp	0.34 %	2.9	8.3	8.3	9.477	14.0	12.6	8.743	(Valuations at the time of Launch)	
26 bp	0.35 %	4.0	9.4	9.3	9.470	15.1	13.6	8.737	[CF based on Daiwa Model]:	
27 bp	0.36 %	5.0	10.4	10.3	9.463	16.1	14.6	8.731	OAS=6.9bp, YCS=12.3bp, ASW=13.5bp	
28 bp	0.37 %	6.0	11.4	11.3	9.456	17.1	15.6	8.725	[CF based on PSJ Model]:	
29 bp	0.38 %	7.0	12.4	12.3	9.449	18.1	16.6	8.719	YCS=17.8bp, ASW=16.9bp	
30 bp	0.39 %	8.1	13.4	13.2	9.441	19.1	17.7	8.714	(Valuations in the secondary market)	
31 bp	0.40 %	9.1	14.5	14.2	9.434	20.1	18.7	8.708	[CF based on Daiwa Model/Daiwa Price]	
32 bp	0.41 %	10.1	15.5	15.2	9.427	21.2	19.7	8.702	OAS=2bp, YCS=7.6bp, ASW=7.6bp	
33 bp	0.42 %	11.2	16.5	16.2	9.420	22.2	20.7	8.696	[CF based on PSJ Model/JSDA price]:	
										YCS=12.9bp, ASW=11.2bp
<Daiwa Model>										<PSJ Model/based on PSJ Forecast Statistical Data>
PSJ	7.25 %	Ave: 8.29 %			(Median: 8.46) %					
WAL	9.72 years	9.11 years			(8.99) years					

Source: Compiled by Daiwa Securities.

Note: 1) Figures in colored cells show similar indications to those in the previous issue, as indicated in the right section (Indications of Previous MBS Issue) with the same colors. Spreads in the previous issue at launch are based on those at the time of pricing. The spreads in the previous issue in the secondary market used in the Daiwa model are based on Daiwa prices, and the spreads in the previous issue in the secondary market used in the PSJ model are based on the JSDA's Trading Reference Statistical Data.

2) Figures for both Trading Reference Statistical Data and PSJ Forecast Statistical Data are average figures.

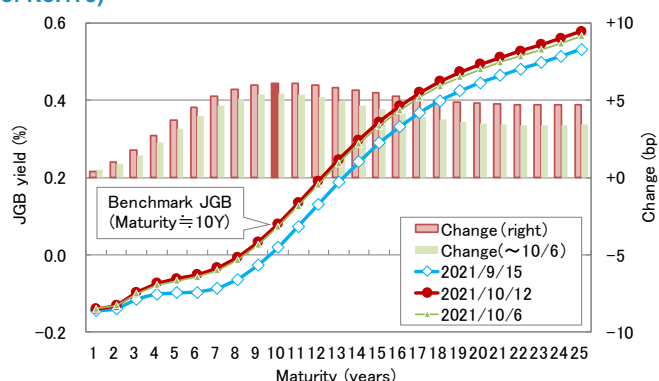
3) Estimated cash flow is based on the assumption that clean-up call options are exercised in initial April or October after the outstanding amount becomes 10% or less of the original.

Launch spread indications

The previous issue (No. 173) was launched at a time when the on-the-run 10-year JGB yield was testing an increase in the bottom of its range of several basis points above 0.01%. Then from mid-September, the upper end of the 10yr JGB yield's range increased to close to 0.10%.

If the launch spread is the same as the previous issue at 29bps, the No. 174 coupon would be 0.38 %. In this case, the OAS would be 7.0bps, up0.2bps from the previous issue's launch OAS. The OAS narrowing would be in connection with changes in the shape of the yield curve, a technical factor, mainly because of small increases in superlong yields than the increase in the benchmark JGB's yield.

Chart: JGB Yield Curve Changes (from the day before launch day of No.173)



Source: Compiled by Daiwa Securities.

(Connection with risk premium of previous issue)

【Pricing using our model's cash flow estimates】

- The No. 173's launch OAS was 6.9bps and the YCS 12.3bps. Based on the similar OAS and YCS, the No. 173's launch spread would be 29bps and the coupon 0.38%.
- In the secondary market, the No. 173's OAS is 2.0bps and the YCS 7.6bps. In line with these, the No. 174's launch spread would be about 24-25bps and the coupon 0.33-0.34%.

【Pricing using PSJ forecast-based cash flow estimates】

- The No. 173's launch YCS was 17.8bps. Based on the similar YCS, the No. 174's launch spread would be about 29bps and the coupon 0.38%.
- In the secondary market, the No. 173's YCS is 12.9bps. In line with this, the No. 174's launch spread would be about 24bps and the coupon 0.33%.

(Demand forecast for No. 174 issue and issuance level)

Pandemic impacts and the economic environment

Japan's fifth wave of COVID-19 infections has largely passed. Consumption demand is rising as the pandemic sides, but there has been no easing of global supply chain disruptions and commodity price increases. Supply chain constraints and rising prices will probably continue exerting a dampening effect on volume growth in consumption and the overall economy.

Credit enhancement ratio and RMBS issuance volume

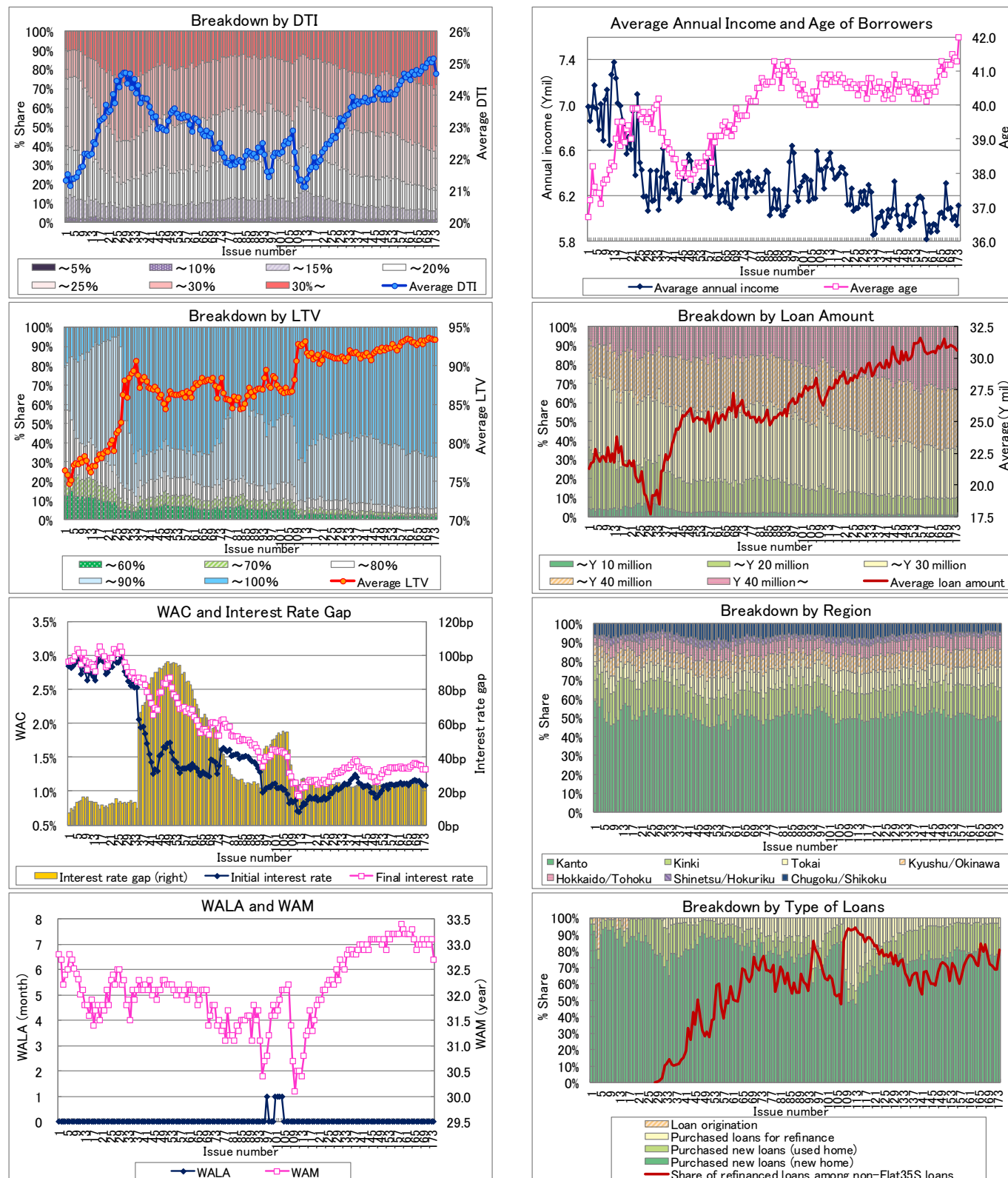
We expect the amount of upcoming issuance to be about 14% smaller than the year-ago issue. This is because, in addition to a 13% decline in the amount of Flat 35 loans in the underlying pool, the issue is likely to be over-collateralized with a considerably higher credit enhancement ratio than was the case a year ago. A higher credit enhancement ratio results in a lower amount of RMBS issuance. The credit enhancement ratio of the No. 162 JHF RMBS issued in October 2020 was 20.0%. Issuing the No. 174 at a credit enhancement ratio close to the 21.6% of the preceding issue would by itself reduce the volume of RMBS issuance by more than 1%.

Coupon in the higher 0.3% range

The personal opinion of your author is that the launch spread for this issue will confirm sufficient demand and be either 29bp, the same as for the last one. In this case, the

coupon would be 0.38% (based on 12 October closing prices).

Characteristics of Underlying Loan Pools for All JHF Monthly MBSs



Source: JHF; compiled by Daiwa Securities.

Note: Candidate pool used for No. 174 issue.

Characteristics of Underlying Loans: No. 174 Monthly MBS and Last Six Issues (No. 168-173)

		JHF #168	JHF #169	JHF #170	JHF #171	JHF #172	JHF #173	JHF #174	Ave. of previous 6 issues	Change from #173
Loan Pool Selected in		Mar-2021	Apr-2021	May-2021	Jun-2021	Jul-2021	Aug-2021	Sep-2021		
Loan Application Started in		Jul-2018	Mar-2019	Dec-2018	May-2018	Mar-2019	Aug-2018	Jun-2019		
Repayment Started in		Feb-2021	Mar-2021	Apr-2021	May-2021	Apr-2021, June-2021	Jul-2021	Sep-2021		
Initial Outstanding Entrusted Assets (Y mil)		241,717	176,241	142,859	167,960	156,411	145,338	160,086	171,755	+14,748
Issue Size (Y mil)		192,900	140,800	113,000	132,600	123,400	113,900	TBD	136,100	-
Excess Collateral (Y mil)		48,817	35,441	29,859	35,360	33,011	31,438	TBD	35,655	-
Overcollateralization		20.1%	20.1%	20.9%	21.0%	21.1%	21.6%	TBD	20.8%	-
Number of Loans		7,656	5,712	4,618	5,410	5,055	4,708	5,228	5,527	+520
Average Outstanding Loan (Y mil)		31.572	30.855	30.935	31.046	30.942	30.868	30.621	31.036	-0.247
Average LTV		92.85%	93.32%	93.36%	93.64%	93.45%	93.39%	93.42%	93.34%	+0.03%
Average DTI		24.88%	24.85%	24.99%	25.12%	25.04%	25.14%	24.68%	25.00%	-0.46%
Average LTV for Refinance		81.96%	81.09%	81.34%	83.08%	81.14%	85.13%	89.36%	82.29%	+4.23%
Average DTI for Refinance		19.03%	19.05%	18.73%	19.44%	18.76%	19.31%	18.66%	19.05%	-0.65%
Average Annual Income of Obligors (Y mil)		6.310	6.082	6.089	5.988	6.019	5.940	6.117	6.071	+0.178
Average Age of Obligors		41.2	41.2	41.2	41.5	41.4	41.4	42.0	41.3	+0.6
WAC (Initial Rate)		1.15%	1.17%	1.15%	1.15%	1.13%	1.08%	1.08%	1.14%	+0.00%
WAC (Final Rate)		1.39%	1.41%	1.40%	1.39%	1.37%	1.32%	1.32%	1.38%	-0.00%
WALA (Weighted Average Loan Age)		0	0	0	0	0	0	0	0	+0
WALA for Refinance		121	118	123	116	126	121	117	121	-4
WAM		396	397	396	397	396	397	392	397	-5
Maturity Structure of Loans at Origination (% share)	Up to 10Y	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	+0.0%
	10-20Y	4.8%	4.3%	5.0%	4.2%	4.4%	4.4%	5.6%	4.5%	+1.2%
	20-25Y	3.7%	4.3%	4.0%	4.3%	4.0%	3.6%	5.1%	4.0%	+1.4%
	25-30Y	6.9%	6.7%	6.2%	6.9%	7.2%	7.1%	7.8%	6.8%	+0.8%
	Over 30Y	84.4%	84.6%	84.7%	84.6%	84.3%	84.8%	81.4%	84.6%	-3.4%
% share of loans with bonus payments	(in number)	10.9%	9.4%	8.7%	7.9%	8.2%	7.9%	9.2%	8.8%	+1.3%
	(in value)	12.1%	10.5%	10.0%	9.0%	9.3%	9.0%	10.1%	10.0%	+1.1%
Type of Loan	new	97.1%	96.5%	96.8%	96.8%	97.0%	96.7%	94.3%	96.8%	-2.4%
	refinanced	2.9%	3.5%	3.2%	3.2%	3.0%	3.3%	5.7%	3.2%	+2.4%
Loan Amount at Origination (% share)	Up to Y10 mil	0.8%	0.9%	0.8%	0.8%	0.9%	0.9%	0.9%	0.9%	-0.0%
	Y10-20 mil	8.4%	9.0%	8.8%	8.4%	8.7%	8.6%	9.4%	8.6%	+0.8%
	Y20-30 mil	24.7%	26.1%	26.4%	26.4%	26.4%	26.2%	26.7%	26.0%	+0.5%
	Y30-40 mil	30.5%	30.6%	31.6%	31.4%	31.1%	32.1%	30.0%	31.2%	-2.1%
	Y40-50 mil	18.2%	18.5%	17.6%	18.7%	18.0%	17.5%	17.2%	18.1%	-0.3%
	Over Y50 mil	17.4%	14.9%	14.8%	14.3%	14.9%	14.8%	15.9%	15.2%	+1.1%
Loan Amount by Region (% share)	Hokkaido/Tohoku	8.1%	7.5%	6.8%	6.4%	7.3%	7.7%	7.3%	7.3%	-0.4%
	Kanto	49.4%	50.6%	49.9%	51.2%	50.3%	47.5%	48.3%	49.8%	+0.8%
	Shinetsu/Hokuriku	1.9%	2.1%	2.0%	2.1%	2.4%	2.3%	1.8%	2.1%	-0.5%
	Tokai	9.0%	9.8%	9.9%	9.7%	10.3%	11.6%	10.9%	10.0%	-0.7%
	Kinki	17.1%	16.9%	18.5%	17.3%	16.5%	16.6%	17.8%	17.2%	+1.1%
	Chugoku	2.9%	2.4%	2.9%	2.8%	2.7%	3.2%	3.2%	2.8%	-0.1%
	Shikoku	1.3%	1.1%	1.0%	1.5%	1.4%	1.2%	1.2%	1.3%	-0.1%
	Kyushu/Okinawa	10.3%	9.7%	9.0%	9.1%	9.1%	9.8%	9.6%	9.5%	-0.2%

Source: JHF; compiled by Daiwa Securities.

Note: Candidate pool used for No. 174 issue.

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- 4: Underperform TOPIX/benchmark index by 5-15% over the next 12 months.
- 5: Underperform TOPIX/benchmark index by more than 15% over the next 12 months.

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