

JHF No.171 Monthly MBS Issue

Strategic Memorandum DSBE015

FICC Research Dept.

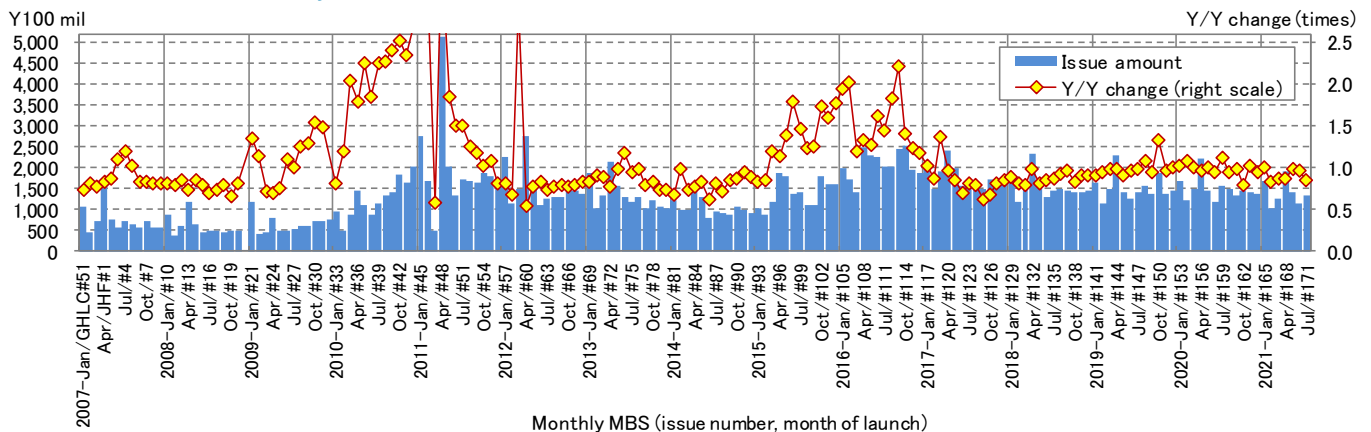
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Daiwa Securities Co. Ltd.

➤ Issue size likely to be down 15% Y/Y

- The Japan Housing Finance Agency (JHF) plans to issue its No. 171 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. 171 issue are the Y168.0 billion of Flat 35 loans originated in February. Assuming overcollateralization at a credit enhancement ratio of 20.9%, which is what it was the previous issue, the issuance amount will be Y132.8 billion.
- The amount of Flat 35 mortgages originated in June declined 15% Y/Y. The increase in the lowest retail rate on the mortgages (by 0.06ppt Y/Y to 1.35%) and the pandemic probably had an effect. The average LTV and DTI are record highs, indicating that Flat 35 mortgages are broadly meeting demand for mortgages.
- Based on our prepayment model, we estimate a WAL of 9.71 years (based on 9 July closing prices; same hereinafter). The expected WAL based on the JHF's PSJ Forecast Statistical Data is 9.03 years.
- The No. 170, launched in June, had a launch spread of 30bps and a coupon of 0.36%. Based on the same launch spread, the No. 171 would have a coupon of 0.33% and an OAS of 6.4bps, 1.1bps tighter than the previous issue's launch OAS. Based on the No. 170's OAS in the secondary market, the No. 171's launch spread is estimated at 26bps and the coupon 0.29%.
- We think it appropriate that supply and demand will meet at the launch spread of about 30bps. If so, the coupon would be about 0.33%.

Chart: Issue Amount of Monthly MBS



Source: JHF; compiled by Daiwa Securities.
 Note: Estimate for No. 171 issue.

Issuance of JHF MBS and Situations of Flat 35

No. 171 to be launched in July

The Japan Housing Finance Agency (JHF) plans to price (launch) its No. 171 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 (JB363 in this case) at the time of the launch. The launch date is scheduled in mid-July, and the payment date is scheduled on 27 July.

Issuance amount of about Y133 billion

Candidate trust assets for the No. 171 totaled Y168.0 billion, all of which were Flat 35 loans originated in February. The issue is likely to have the highest ratings from S&P and R&I. The issue amount is to be announced on 12 July. If the credit enhancement ratio is unchanged from that for the previous issue at 20.9%, the issue amount is estimated at Y132.8 billion.

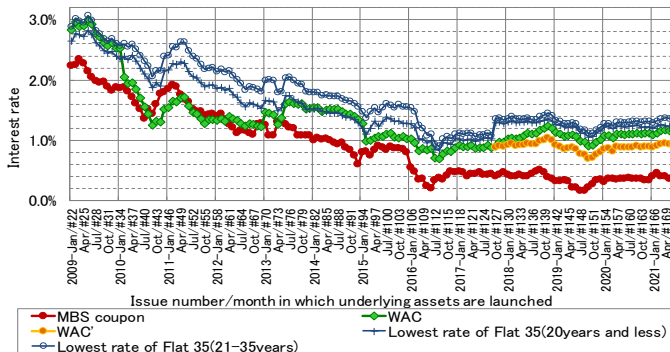
The amount of Flat 35 loans declined 15% y/y in July

The amount of Flat 35 mortgages originated in June declined 15% Y/Y to Y168 billion. The lowest retail rate on the mortgages was 1.35% (35-year term; including group credit life insurance premiums), down 0.01ppt M/M but up 0.06ppt Y/Y. The lowest rate for mortgages up to 20 years was 1.22%, down 0.01ppt M/M but unchanged Y/Y.

Average LTV and DTI at record highs

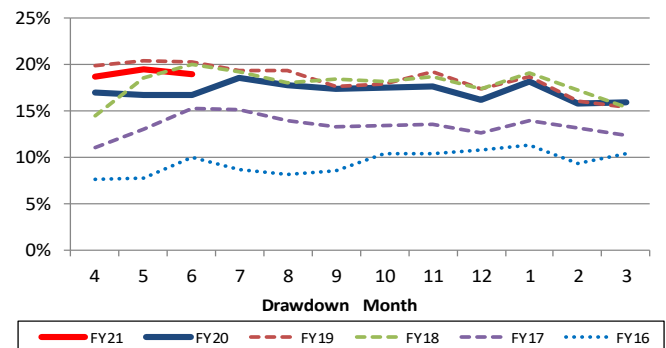
We think rate increases and the pandemic were the main reasons for the 15% Y/Y decline in the amount of mortgages originated in June. The average LTV and DTI are at record highs (see pages 6-7), indicating that Flat 35 mortgages are broadly meeting demand for mortgages. Along with the decline in the amount of mortgages originated, gains made by guarantee-type Flat 35 mortgages, which tend to be selectively made available at low rates to borrowers with large down payments, and private-sector financial institutions' direct loans without guarantees probably had an impact. Use of the mortgages for the acquisition of existing homes was fairly common.

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



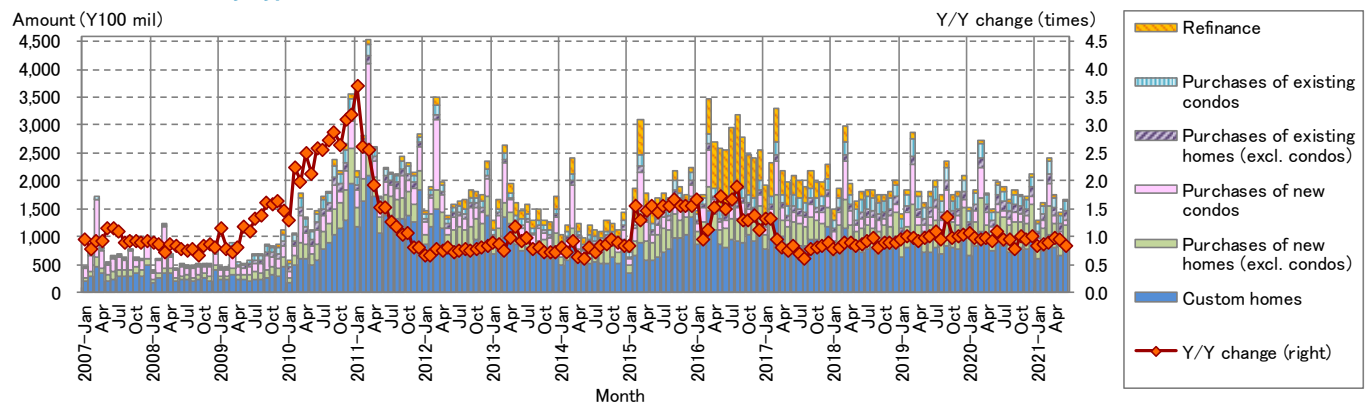
Source: JHF; compiled by Daiwa Securities.

Chart: Share of Old Home & Condos (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 30bps and coupon of 0.36%

The No. 170 (¥113.0 billion) was launched on 18 June with a coupon of 0.36%. The coupon was determined by adding the launch spread of 30bp on the compound yield of benchmark JB362. The OAS at launch (our estimate; same hereinafter) stood at 7.5bps (1.7bps tighter than previous issue) and the YCS was 13.5bps (1.2bps tighter).

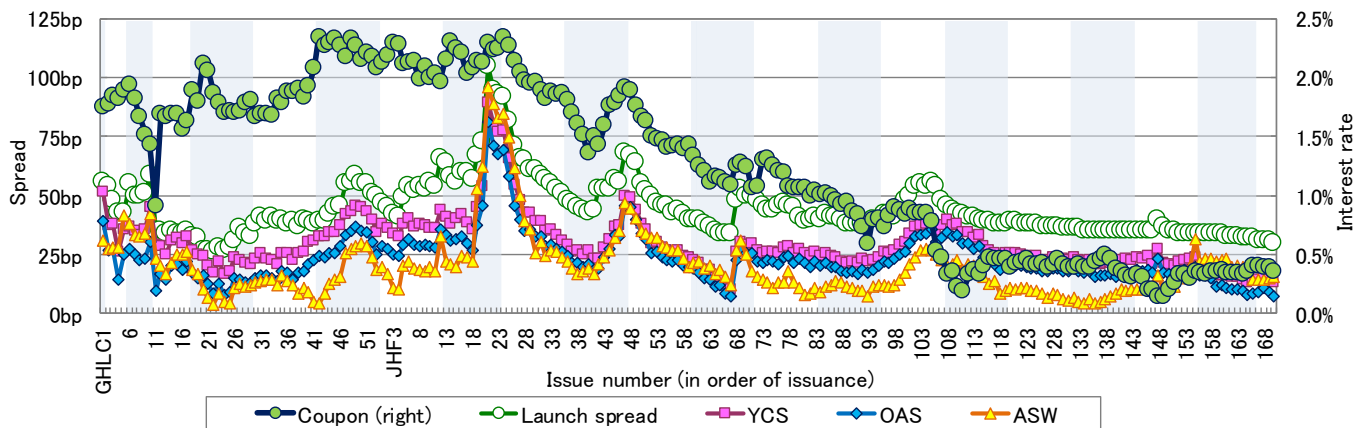
Effects of bull steepening of JGB yield curve

The launch spread is 1bp lower than the previous issue's. The coupon declined because the benchmark JGB's yield to maturity was lower than last time. The OAS and YCS declined much more than the launch spread because the benchmark JGB's yield declined by much more than other JGB yields as well as the superlong zone of the JGB yield curve, which reflects this trend. Decently strong investor demand, which led to the spread narrowing, should lead to a decline in Flat 35 mortgage rates, growth in issuance of RMBS through increased usage of Flat 35 mortgages, and an improvement in the supply-demand balance.

OAS and YCS are wider than on-the-run issue's

Even so, the No. 170's OAS, YCS, and yield to maturity were at least 5bps higher than those of the on-the-run issue in the secondary market because of strong growth in investor demand in the primary market.

Chart: Issuance Terms for JHF Monthly MBS

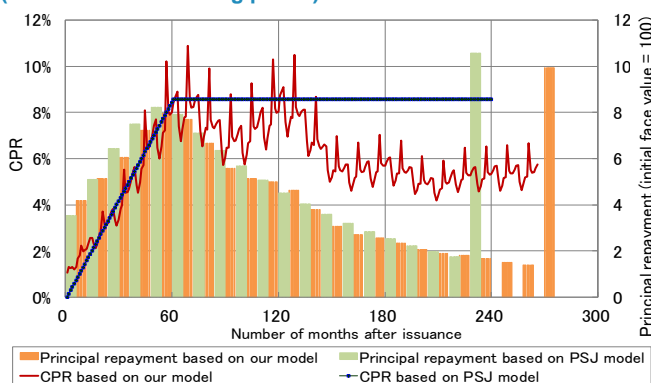


Source: JHF and our estimates.
Note: The background colors indicate different fiscal years.

Different risk premiums depending on expected cash flow distribution

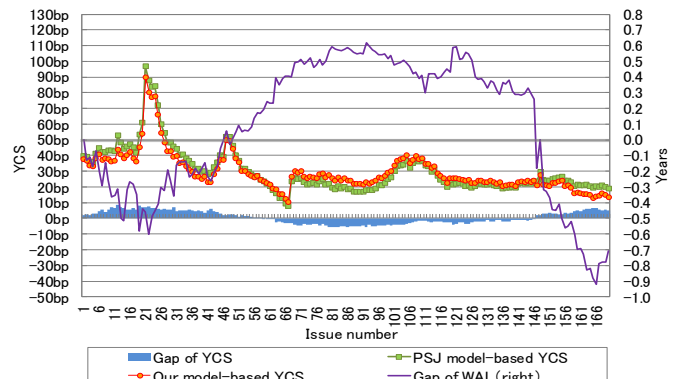
With regard to the pricing of JHF MBS, it should be noted that the risk premium varies depending on the expected cash flow distribution. The expected cash flows of JHF MBS No.167 based on our prepayment model have terms that are somewhat longer than those based on the PSJ Forecast Statistical Data. As a result, YCSs based on our prepayment model are several basis points lower than those based on the PSJ Forecast Statistical Data. Since tweaking our model in July 2019, we have updated the model's parameters, and the expected maturity at the time of new issuance has gradually risen since the No. 147. We have recently adjusted this.

Chart: Expected CPR & Principal Repayment for No. 171 Issue (based on 9 Jun 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. 171

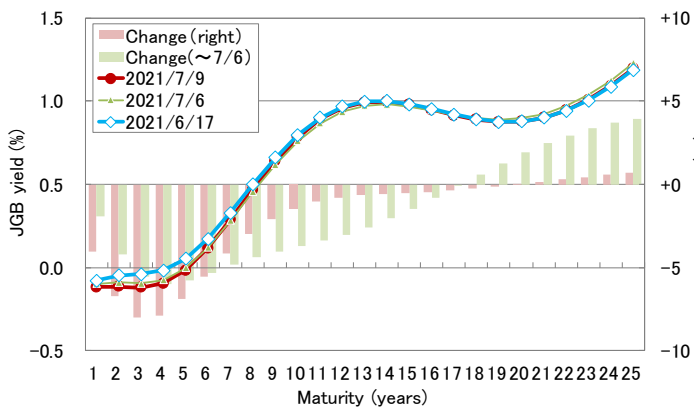
We take a look at the issuance terms for the upcoming issue. Based on expected cash flow using our prepayment model and the PSJ model, we estimate the issuance terms (the coupon and launch spread) and the risk premiums.

Expected maturity of around 9-10 years

The expected cash flow distribution for the upcoming issue (the chart on the previous page, based on 9 July closing prices; hereinafter the same unless otherwise noted) is about the same as the previous issue (at the time of its launch; same hereinafter). Both our model and PSJ Forecast Statistical Data suggest that the expected WAL is about 9-10 years.

- Based on our model, the expected WAL is 9.71 years (9.76 years for the previous issue) and the expected final maturity 22.2 years (22.3 years). The PSJ forecast is 7.41% (vs. 7.30% for the previous issue).
- The PSJ Calculation Statistical Value (average) is 8.58% (vs. 8.54% for the previous issue). Accordingly, the expected WAL is 9.03 years (vs. 9.05 years for the previous issue) and the expected final maturity 19.7 years (19.8 years).

Chart: Change in 3Y-Forward Rate (from the day before launch day of No.170)



The expected maturity is slightly shorter than the previous issue's mainly because refinancing rates for future periods are expected to decline, as implied forward rates up to the 18-year sector have declined. The final maturities rise at half-year intervals with the JHF's operations, but the shortening reflects differences in payment date because the final redemption date is expected to be the same as the previous one's.

The underlying loan pool's WAC (weighted average coupon; see pp. 6-7) is 1.15% and the WAC' 0.93% [10], the same as the previous issue's.

Source: JHF; compiled by Daiwa Securities.

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

Chart: Launch Spread Estimates for No. 171 MBS (based on 9 Jul closing prices)

Valuations of JHF_MBS_#171 Pricing(Simulation)									9-Jul-21 (Tokyo Close)		
Base Yield: JGB(363G) YTM 0.025 %											
Launch Spread	Coupon	Valuations of Cash Flows							Indications of Previous RMBS Issue (#161)		
		Daiwa Model				PSJ Model					
		Dynamic	Static			PSJ forecast Statistical Data(Ave)					
		OAS	YCS	ASW	ModDur	YCS	ASW	ModDur			
24 bp	0.27 %	0.2	6.4	10.5	9.510	11.8	14.0	8.872	(Issuance Terms) Launch Spread=30bp Coupon=0.36% (Valuations at the time of Launch) [CF based on Daiwa Model]: OAS=7.5bp, YCS=13.5bp, ASW=15.7bp [CF based on PSJ Model]: YCS=18.7bp, ASW=19bp (Valuations in the secondary market) [CF based on Daiwa Model/Daiwa Price] OAS=2bp, YCS=8bp, ASW=11.9bp [CF based on PSJ Model/JSDA price]: YCS=12bp, ASW=13.8bp		
25 bp	0.28 %	1.3	7.4	11.5	9.503	12.8	15.0	8.866			
26 bp	0.29 %	2.3	8.4	12.5	9.496	13.8	16.0	8.860			
27 bp	0.30 %	3.3	9.5	13.5	9.489	14.8	17.0	8.854			
28 bp	0.31 %	4.4	10.5	14.4	9.482	15.9	18.0	8.848			
29 bp	0.32 %	5.4	11.5	15.4	9.474	16.9	19.1	8.841			
30 bp	0.33 %	6.4	12.5	16.4	9.467	17.9	20.1	8.835			
31 bp	0.34 %	7.4	13.6	17.4	9.460	18.9	21.1	8.829			
32 bp	0.35 %	8.5	14.6	18.4	9.453	19.9	22.1	8.823			
33 bp	0.36 %	9.5	15.6	19.4	9.446	20.9	23.1	8.817			
34 bp	0.37 %	10.5	16.6	20.4	9.438	22.0	24.1	8.811			
35 bp	0.38 %	11.5	17.6	21.3	9.431	23.0	25.2	8.805			
		<Daiwa Model>			<PSJ Model/based on PSJ Forecast Statistical Data>						
		PSJ	7.41 %	Ave: 8.58 %			(Median: 8.67) %				
		WAL	9.71 years	9.03 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.

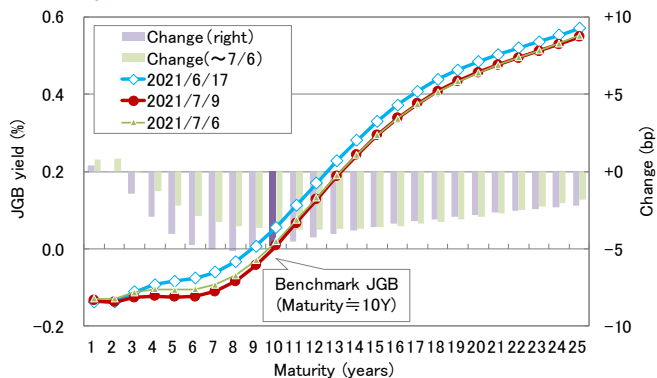
3) Estimated cash flow is based on the assumption that clean-up call options are exercised in initial April or October after the outstanding amount becomes 10% or less of the original.

Launch spread indications

The previous issue (the No. 170) launched as the high of the yield to maturity of the on-the-run 10-year JGB started to gradually decline within the range of 0.0-0.10%. The high of the 10-year JGB yield subsequently declined by several basis points.

In this case, the OAS would be 6.4bps, down 1.1bps 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 smaller declines in superlong yields than the decline in the benchmark JGB's yield.

Chart: JGB Yield Curve Changes (from the day before launch day of No.170)



Source: Compiled by Daiwa Securities.

(Connection with risk premium of previous issue)

【Pricing using our model's cash flow estimates】

- The No. 170's launch OAS was 7.5bps and the YCS 13.5bps. Based on the similar OAS and YCS, the No. 171's launch spread would be 31-32bps and the coupon 0.34-0.35%.
- In the secondary market, the No. 170's OAS is 2.0bps and the YCS 8.0bps. In line with these, the No. 171's launch spread would be about 26bps and the coupon 0.29%.

【Pricing using PSJ forecast-based cash flow estimates】

- The No. 170's launch YCS was 18.7bps. Based on the similar YCS, the No. 171's launch spread would be about 31bps and the coupon 0.34%.
- In the secondary market, the No. 170's YCS is 12.0bps. In line with this, the No. 171's launch spread would be about 24bps and the coupon 0.27%.

(Demand forecast for No. 171 issue and issuance level)

Status of the pandemic

The fourth wave of COVID-19 infections in Japan had settled down by early June. On 20 June, the government lifted the state of emergency in nine prefectures (Tokyo, Osaka, Hyogo, Kyoto, Fukuoka, Aichi, Hokkaido, Okayama, and Hiroshima) but kept it in effect in Okinawa. However, the government imposed a fourth state of emergency in Tokyo, from 12 July to 22 August, because of a rise in new cases, mainly among adults in their 20s, and the spread of the Delta variant of the virus since mid-June. Nevertheless, the pace of vaccinations in Japan exceeds 1 million per day.

Tokyo Olympic and Paralympic Games

The Tokyo Organising Committee of the Olympic and Paralympic Games decided that there will be no fans at the events. It was an unfortunate move, but the committee had little choice, so as to help keep economic restraints from worsening in light of the rise in cases.

RMBS issuance amount

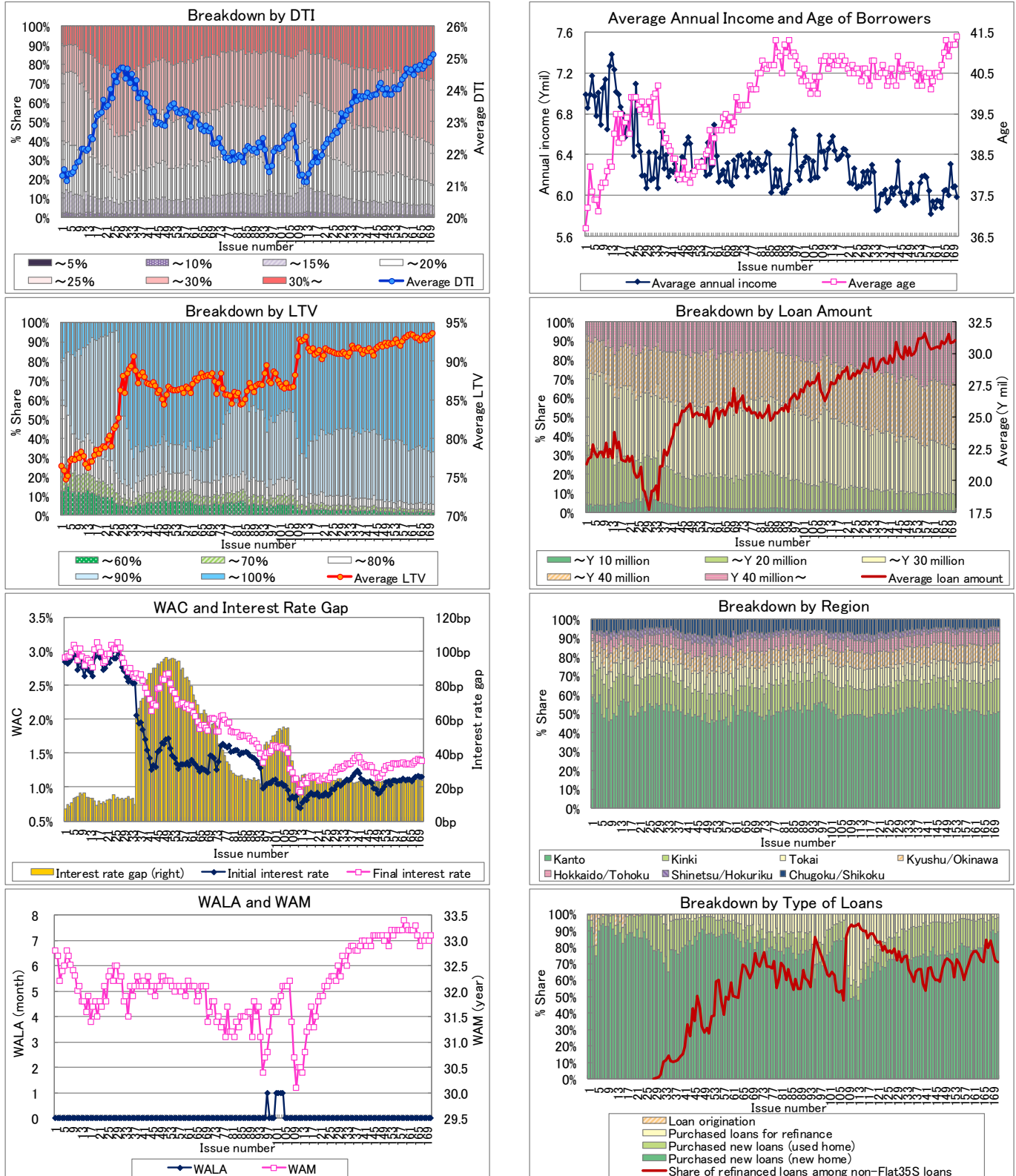
The issue's size is likely to be down 15% Y/Y. Given that the underlying mortgages have weak characteristics, such as a high average LTV, the credit enhancement ratio will probably be higher than the previous issue's 20.9% so as that the issue can get a AAA rating. The issue size is likely to be limited as a result.

Coupon of around 0.3%

We think there will be decent demand at a launch spread of 30bps, the same as the previous issue's. In this case, the coupon would be 0.33% (based on 9 July closing prices). The launch spread should be 31bps if investors eye a launch OAS that is the

same as the previous issue's, but the launch spread might easily be kept from being wider than the previous issue's, given the popularity and extent of investor demand for the on-the-run secondary issue.

Characteristics of Underlying Loan Pools for All JHF Monthly MBSs



Source: JHF; compiled by Daiwa Securities.
Note: Candidate pool used for No. 171 issue.

Characteristics of Underlying Loans: No. 171 Monthly MBS and Last Six Issues (No. 165-170)

	JHF #161	JHF #162	JHF #163	JHF #164	JHF #165	JHF #166	JHF #167	Ave. of previous 6 issues	Change from #167	
Loan Pool Selected in	Dec-2020	Jan-2021	Feb-2021	Mar-2021	Apr-2021	May-2021	Jun-2021			
Loan Application Started in	Aug-2018	Dec-2017	Jul-2018	Jul-2018	Mar-2019	Dec-2018	May-2018			
Repayment Started in	Dec-2020, Aug-2020	Dec-2020~Jan-2021	Feb-2021	Mar-2021	Apr-2021	May-2021	Apr-2021, June-2021			
Initial Outstanding Entrusted Assets (Y mil)	212,100	128,316	159,663	241,717	176,241	142,859	167,988	176,816	+25,129	
Issue Size (Y mil)	169,400	102,000	127,400	192,900	140,800	113,000	TBD	140,917	-	
Excess Collateral (Y mil)	42,700	26,316	32,263	48,817	35,441	29,859	TBD	35,899	-	
Overcollateralization	20.1%	20.5%	20.2%	20.1%	20.1%	20.9%	TBD	20.3%	-	
Number of Loans	6,846	4,173	5,158	7,656	5,712	4,618	5,410	5,694	+792	
Average Outstanding Loan	30.982	30.749	30.954	31.572	30.855	30.935	31.051	31.008	+0.116	
Average LTV	92.73%	92.92%	93.28%	92.85%	93.32%	93.36%	93.64%	93.08%	+0.28%	
Average DTI	24.79%	24.67%	24.74%	24.88%	24.85%	24.99%	25.12%	24.82%	+0.13%	
Average LTV for Refinance	82.60%	86.91%	82.48%	81.96%	81.09%	81.34%	83.08%	82.73%	+1.74%	
Average DTI for Refinance	19.76%	19.53%	19.31%	19.03%	19.05%	18.73%	19.44%	19.24%	+0.71%	
Average Annual Income of Obligor (Y mil)	6.042	6.054	6.000	6.310	6.082	6.089	5.988	6.096	-0.101	
Average Age of Obligor	41.0	41.3	40.9	41.2	41.2	41.2	41.4	41.1	+0.2	
WAC (Initial Rate)	1.11%	1.09%	1.12%	1.15%	1.17%	1.15%	1.15%	1.13%	+0.00%	
WAC (Final Rate)	1.35%	1.33%	1.36%	1.39%	1.41%	1.40%	1.39%	1.38%	-0.01%	
WALA (Weighted Average Loan Age)	0	0	0	0	0	0	0	0	+0	
WALA for Refinance	124	115	115	121	118	123	116	119	-7	
WAM	397	395	396	396	397	396	397	396	+1	
Maturity Structure of Loans at Origination (% share)	Up to 10Y	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	-0.0%	
	10-20Y	4.5%	4.9%	4.4%	4.8%	4.3%	5.0%	4.2%	-0.8%	
	20-25Y	3.7%	4.4%	4.1%	3.7%	4.3%	4.0%	4.3%	+0.3%	
	25-30Y	6.8%	7.5%	7.1%	6.9%	6.7%	6.2%	6.9%	+0.7%	
	Over 30Y	84.9%	83.2%	84.2%	84.4%	84.6%	84.7%	84.6%	84.3%	-0.1%
% share of loans with bonus payments	(in number)	10.8%	9.2%	10.8%	10.9%	9.4%	8.7%	7.9%	10.0%	-0.8%
	(in value)	12.4%	10.8%	12.4%	12.1%	10.5%	10.0%	9.0%	11.4%	-1.1%
Type of Loan	new	97.4%	95.5%	96.3%	97.1%	96.5%	96.8%	96.8%	96.6%	-0.0%
	refinanced	2.6%	4.5%	3.7%	2.9%	3.5%	3.2%	3.2%	3.4%	+0.0%
Loan Amount at Origination (% share)	Up to ¥10 mil	0.9%	1.1%	0.9%	0.8%	0.9%	0.8%	0.8%	0.9%	-0.0%
	¥10-20 mil	8.5%	9.0%	8.8%	8.4%	9.0%	8.8%	8.4%	8.7%	-0.4%
	¥20-30 mil	25.9%	25.2%	25.4%	24.7%	26.1%	26.4%	26.4%	25.6%	-0.0%
	¥30-40 mil	31.9%	32.3%	31.8%	30.5%	30.6%	31.6%	31.4%	31.4%	-0.1%
	¥40-50 mil	18.1%	18.0%	18.2%	18.2%	18.5%	17.6%	18.7%	18.1%	+1.1%
	Over ¥50 mil	14.7%	14.4%	15.0%	17.4%	14.9%	14.8%	14.3%	15.2%	-0.5%
Loan Amount by Region (% share)	Hokkaido/Tohoku	8.6%	6.7%	6.9%	8.1%	7.5%	6.8%	6.4%	7.4%	-0.4%
	Kanto	49.1%	49.0%	51.5%	49.4%	50.6%	49.9%	51.2%	49.9%	+1.3%
	Shinetsu/Hokuriku	2.4%	2.1%	1.7%	1.9%	2.1%	2.0%	2.1%	2.0%	+0.2%
	Tokai	8.6%	9.0%	10.0%	9.0%	9.8%	9.9%	9.7%	9.4%	-0.2%
	Kinki	16.2%	18.0%	15.9%	17.1%	16.9%	18.5%	17.3%	17.1%	-1.3%
	Chugoku	3.2%	3.7%	2.9%	2.9%	2.4%	2.9%	2.8%	3.0%	-0.2%
	Shikoku	1.6%	1.6%	1.7%	1.3%	1.1%	1.0%	1.5%	1.4%	+0.5%
Kyushu/Okinawa	10.4%	9.9%	9.4%	10.3%	9.7%	9.0%	9.1%	9.8%	+0.1%	

Source: JHF; compiled by Daiwa Securities.

Note: Candidate pool used for No. 171 issue.

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- 2: Outperform TOPIX/benchmark index by 5-15% over the next 12 months.
- 3: Out/underperform TOPIX/benchmark index by less than 5% over the next 12 months.
- 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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- There may be a difference between bid price etc. and ask price etc. of OTC derivatives handled by our company.
- Before engaging in any trading, please thoroughly confirm accounting and tax treatments regarding your trading in financial instruments with such experts as certified public accountants.

* The amount of the trading commission cannot be stated here in advance because it will be determined between our company and you based on current market conditions and the content of each transaction etc.

** The ratio of margin requirements etc. to the amount of the transaction cannot be stated here in advance because it will be determined between our company and you based on current market conditions and the content of each transaction etc.

When making an actual transaction, please be sure to carefully read the materials presented to you prior to the execution of agreement, and to take responsibility for your own decisions regarding the signing of the agreement with our company.

Corporate Name: Daiwa Securities Co. Ltd.

Registered: Financial Instruments Business Operator, Chief of Kanto Local Finance Bureau (Kin-sho) No.108

Memberships: Japan Securities Dealers Association, The Financial Futures Association of Japan, Japan Investment Advisers Association, Type II Financial Instruments Firms Association