

TIAA CLO IV Rating Report

Non-NRSRO Rating

Tranche Name	EJR Rating*
A1A	AA (sf)
A1B	AA- (sf)
A2	BBB- (sf)
B	BB- (sf)
C	B (sf)
D	CCC (sf)



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Prepared on Oct 28, 2020
*Non-NRSRO Rating

Rating Summary

Tranche Name	EJR Implied Rating	EJR Final Rating* Non-NRSRO Rating	Other NRSROs EJR Equivalent Rating	Current Interest OC (%)	Current Principal OC (%)	Current Subordination* (assets at MV) (%)	Current Subordination* (assets at Par) (%)	Interest Rate
A1A	AA (sf)	AA (sf)	AAA	250.85	120.1	38.70	41.90	LIBOR_3MO + 1.23
A1B	AA- (sf)	AA- (sf)	N/A	250.85	120.1	32.12	35.67	LIBOR_3MO + 1.45
A2	BBB- (sf)	BBB- (sf)	AA	250.85	120.1	19.68	23.87	LIBOR_3MO + 1.70
B	BB- (sf)	BB- (sf)	A	250.85	120.1	13.45	17.97	LIBOR_3MO + 2.15
C	B (sf)	B (sf)	BBB-	219.17	112.05	7.23	12.07	LIBOR_3MO + 3.05
D	CCC (sf)	CCC (sf)	BB-	N/A	107.95	3.70	8.74	LIBOR_3MO + 5.95
SUBORD	NR	NR	N/A	N/A	N/A	-7.59	-1.97	N/A

*EJR's rating assumes that all collateral assets receive an one notch downgrade

*Current Subordination = (Collateral Value - (Pari-Passu Balance + Senior Balance)) / Collateral Value

*MV = Market prices reported by the trustee on the latest report (when available)

*Par = Par Value

Transaction Summary

We are providing the rating of TIAA CLO IV as a Non-NRSRO rating. The transaction closed on December 20, 2018. It had a reinvestment period, which ended on January 20, 2024. It has a maturity date of January 20, 2032. The investments were callable as of January 20, 2021. The Dealer and Trustee were Citigroup and U.S. Bank, respectively. The issued notes are collateralized by 99.81% senior secured loans, cash, and eligible investments with the balance of the portfolio consisting of 0.19% second lien loans and senior unsecured loans. Teachers Advisors serves as the collateral manager.

Quantitative Analysis

Key Credit Metrics

Metrics	Number
SENIOR TRANCHE SUBORDINATION (%)	38.70
DIVERSITY SCORE	56
EJR WEIGHTED AVERAGE RATING SCORE	5046
WEIGHTED AVERAGE LIFE (Years)	4.78
CCC+ OR LESS (%)	16.84

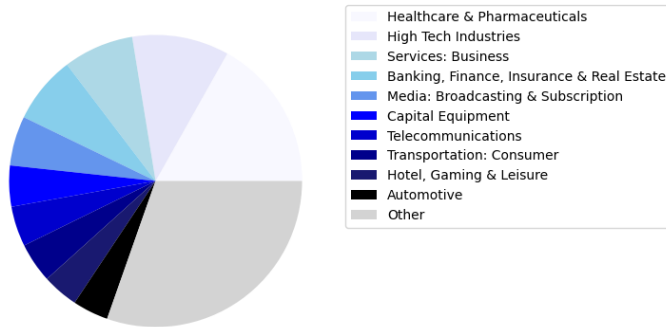
As of October 28, 2020, the total balance of the underlying assets was approximately \$454.9M. The diversity score of the portfolio was 56. EJR's weighted average rating score and weighted average life (years) of the collateral were 5046 and 4.78, respectively. 16.84% of the portfolio's assets were rated CCC+ or less by other NRSROs. Senior tranche subordination was 38.70%.

Portfolio Characteristics

Industry Concentration

Industry Name (Top 5)	Current Balance (M)	Weight (%)	Gross Coupon (%)	Gross Margin	Market Price (\$)
Healthcare & Pharmaceuticals	76.79	16.88	4.31	3.76	95.98
High Tech Industries	48.62	10.71	3.59	3.20	97.63
Services: Business	35.32	7.78	3.91	3.43	96.07
Banking, Finance, Insurance & Real Estate	34.04	7.48	3.58	3.30	97.72
Media: Broadcasting & Subscription	25.01	5.49	3.16	2.84	96.46

Top 10 Industry Contribution

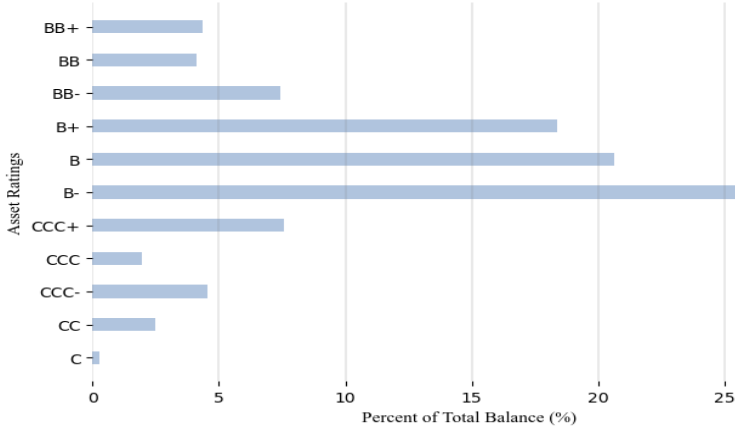


The top 5 industries constituted 48.3% of the underlying portfolio with a total current balance of \$219.8M. The top 5 industries are Healthcare & Pharmaceuticals, High Tech Industries, Services: Business, Banking, Finance, Insurance & Real Estate, and Media: Broadcasting & Subscription. The top 10 industries constituted 69.7% of underlying portfolio.

Rating of Underlying Assets

Other NRSROs EJR Equivalent Rating (Bottom 5)	Current Balance (M)	Weight (%)	Gross Coupon (%)	Gross Margin	Market Price (\$)
CCC+	34.33	7.57	4.01	3.38	91.37
CCC	8.97	1.97	3.97	3.38	87.27
CCC-	20.71	4.57	5.23	4.37	67.76
CC	11.15	2.46	4.14	3.66	59.90
C	1.22	0.27	4.25	3.25	31.27

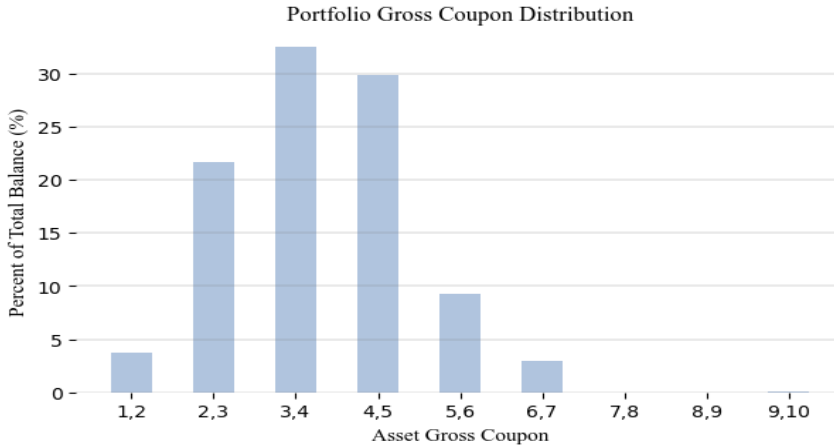
Portfolio Rating Distribution



The current ratings of the underlying assets range from BB+ to C. An amount equal to 16.84% of the underlying assets have ratings equal to or below CCC+, with a total balance of \$18.06M. (Note: The current current ratings are other NRSROs ratings as of October 28, 2020.)

Gross Coupon of Underlying Assets

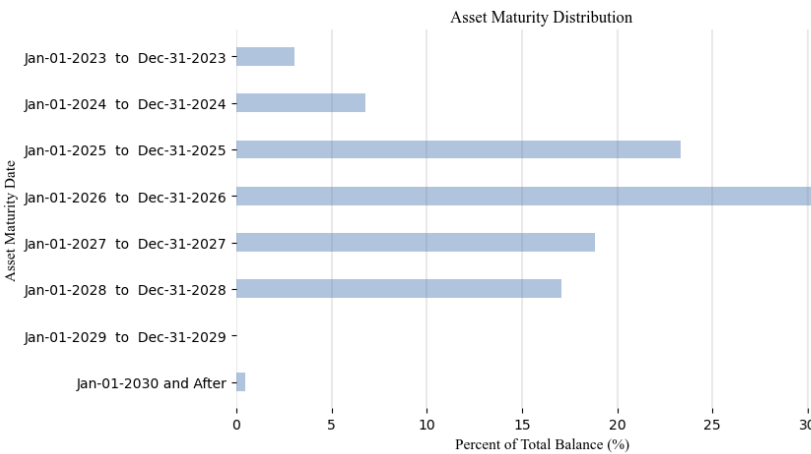
Coupon Range (Top 5)	Current Balance (M)	Weight (%)	Gross Coupon (%)	Gross Margin	Market Price (\$)
> 3.0% but ≤ 4.0%	147.59	32.48	3.54	3.16	95.40
> 4.0% but ≤ 5.0%	135.79	29.86	4.50	3.79	95.87
> 2.0% but ≤ 3.0%	98.37	21.66	2.59	2.37	96.09
> 5.0% but ≤ 6.0%	42.33	9.31	5.62	4.83	94.75
> 1.0% but ≤ 2.0%	17.26	3.78	1.91	1.75	98.27



Gross coupon of the underlying assets ranges from 1.9% to 9.25%. The weighted average gross coupon of the portfolio is approximately 3.87%.

Maturity of Underlying Assets

Maturity Time Range (Top 5)	Current Balance (M)	Weight (%)	Gross Coupon (%)	Gross Margin	Market Price (\$)
Jan-01-2026 to Dec-31-2026	138.66	30.55	3.60	3.22	95.32
Jan-01-2025 to Dec-31-2025	106.28	23.35	4.07	3.45	93.37
Jan-01-2027 to Dec-31-2027	85.56	18.81	3.66	3.32	97.11
Jan-01-2028 to Dec-31-2028	77.86	17.09	3.76	3.30	98.30
Jan-01-2024 to Dec-31-2024	30.58	6.76	4.62	3.79	91.52



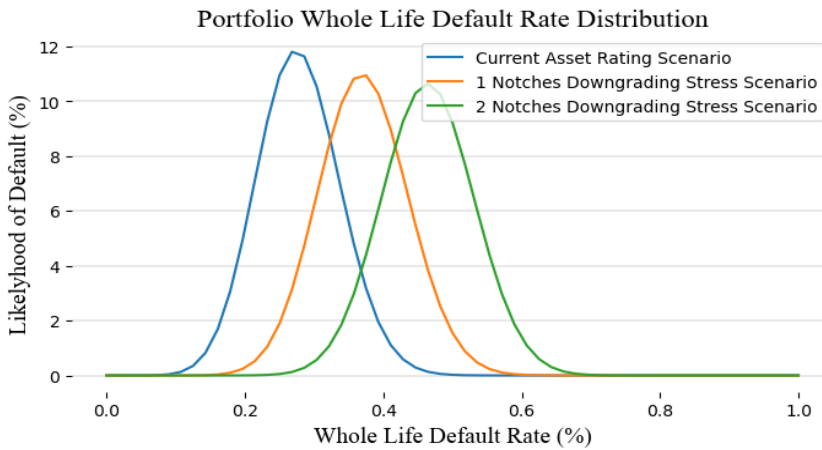
The underlying assets have maturity dates from July 08, 2022 to January 31, 2029. 7.9% of the underlying assets will mature within 3 years, while another 40.1% of the underlying assets have maturities beyond 5 years.

Seniority of Underlying Assets

Assets Priority	Current Balance (M)	Weight (%)	Gross Coupon (%)	Gross Margin	Market Price (\$)
Second Lien	1.28	0.28	7.82	7.25	58.38
Senior Secured	453.62	99.81	3.81	3.32	95.42

There are 459 assets in the underlying collateral pool, 99.81% are senior secured loans, and 0.19% with lower seniority.

Stress Analysis



In EJR's view, the credit quality for syndicated loans has been under pressure recently. Unfortunately, ratings on some loans may be cut multiple notches with little notice. In EJR's base case, we took an one notch cut to the underlying assets to reflect the credit quality of each tranche created by market pressure. In EJR's stress case, we assumed a two notch cut to the underlying assets. According to EJR's Default Probability Table, the base case and stress case weighted average whole life default rate of probability can increase to 37.11% and 46.44%, respectively, from its current level of 27.79%.

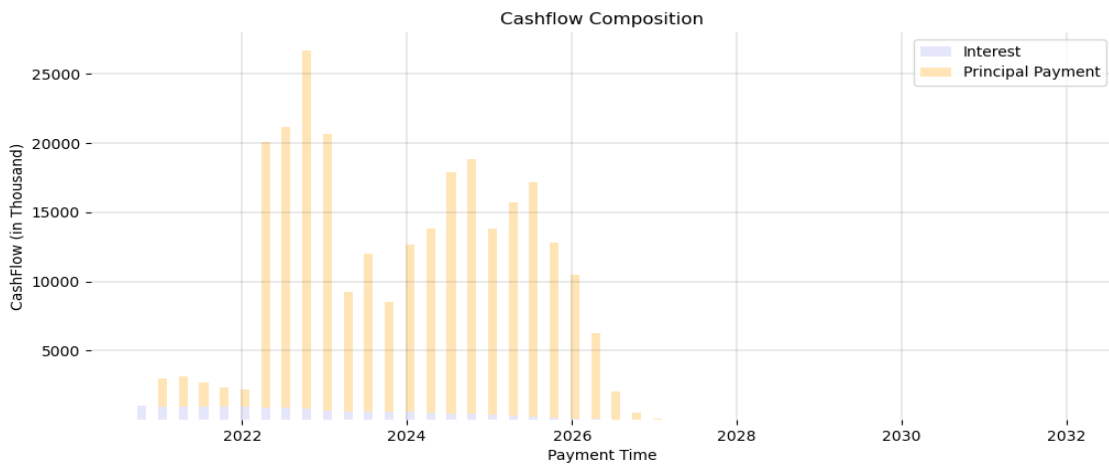
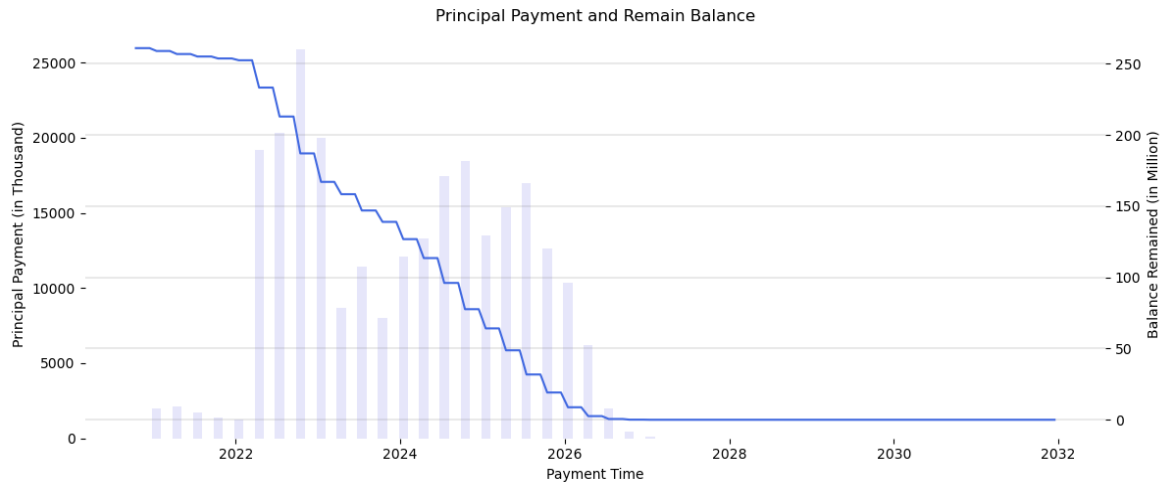
Estimated Loss Information

Estimated loss is one of the key considerations in EJR's structured finance ratings. In times of stress when economic conditions are deteriorating, default rates and loss severity are more likely to increase relative to a portfolio's initial or base case default and loss severity levels. That is a tranche with higher rating should be able to withstand greater stress and sustain lower losses than a tranche with a lower rating. For example, a tranche with AAA rating should be able to survive the great depression scenario (the highest default and loss severity levels experienced if they were to occur in the future). An 'AA' rated tranche would be more susceptible to an adverse economic impact than the 'AAA' rated tranche, but nonetheless should be able to withstand such effects better than a tranche with a lower rating. EJR creates different stress levels based on different target tranche ratings (from AAA to B+). The detailed estimated loss (%) information of each tranche under each stress level is detailed in the below table:

Stress Level	A1A	A1B	A2	B	C	D
Estimated Loss Under AAA (sf) Stress	0.00	4.46	67.13	96.01	96.13	94.73
Estimated Loss Under AA+ (sf) Stress	0.00	0.00	47.21	94.97	95.57	94.22
Estimated Loss Under AA (sf) Stress	0.00	0.00	44.17	94.7	95.48	94.14
Estimated Loss Under AA- (sf) Stress	0.00	0.00	41.09	94.36	95.39	94.06
Estimated Loss Under A+ (sf) Stress	0.00	0.00	12.75	87.57	94.86	93.88
Estimated Loss Under A (sf) Stress	0.00	0.00	10.38	85.89	94.72	93.78
Estimated Loss Under A- (sf) Stress	0.00	0.00	8.12	83.96	94.56	93.67
Estimated Loss Under BBB+ (sf) Stress	0.00	0.00	0.00	56.77	92.67	93.48
Estimated Loss Under BBB (sf) Stress	0.00	0.00	0.00	52.73	92.12	93.34
Estimated Loss Under BBB- (sf) Stress	0.00	0.00	0.00	48.58	91.48	93.19
Estimated Loss Under BB+ (sf) Stress	0.00	0.00	0.00	0.00	63.63	90.62
Estimated Loss Under BB (sf) Stress	0.00	0.00	0.00	0.00	34.41	84.15
Estimated Loss Under BB- (sf) Stress	0.00	0.00	0.00	0.00	5.53	66.17
Estimated Loss Under B+ (sf) or Lower Rating Stress	0.00	0.00	0.00	0.00	0.00	16.88

Tranche A1A

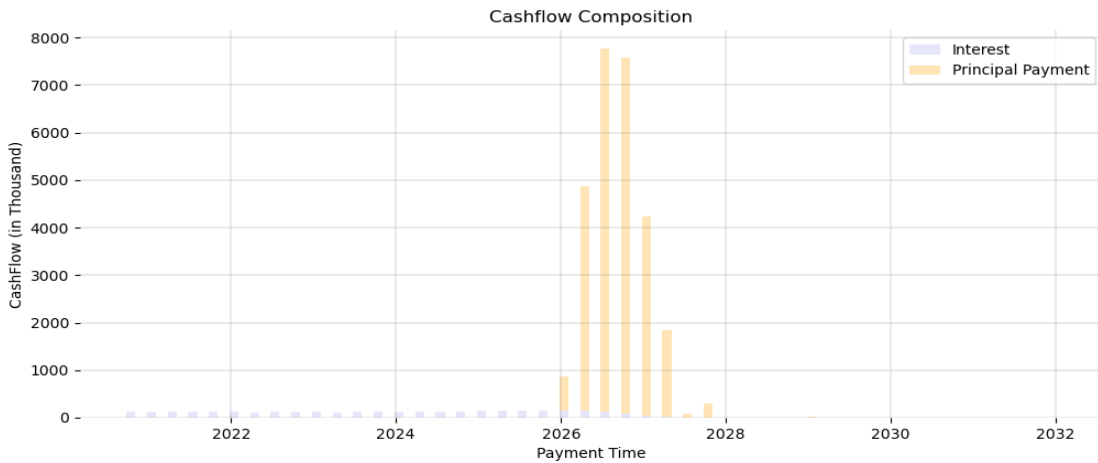
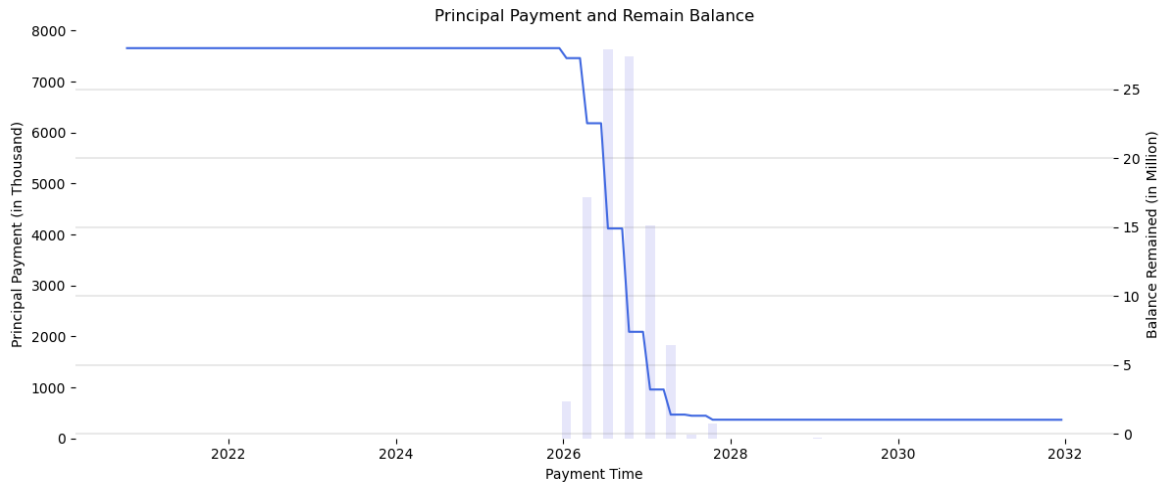
Tranche Information 1	Content 1	Tranche Information 2	Content 2
ORIGINAL BALANCE (\$ Million)	261	IC TEST TRIGGER	115.00
CURRENT BALANCE (\$ Million)	261	CURRENT IC	250.85
TRANCHE SPECIFIC STRESSED PD	72.35	OC TEST TRIGGER	114.10
EJR MODEL IMPLIED RATING	AA (sf)	CURRENT OC	120.10
UNCOVERED BALANCE (assets at MV) (\$ Million)	0	UNCOVERED RATIO (assets at MV) (%)	0.00
UNCOVERED BALANCE (assets at Par) (\$ Million)	0	UNCOVERED RATIO (assets at Par) (%)	0.00



According to the weighted average cashflow output (under EJR's AA (sf) stress level of the whole life default rate, and assuming 50% loss will happen evenly in the first year, remaining 50% will happen evenly in the next 4 years), the payment window for this tranche ranges from October, 2020 to January, 2032. The current principal balance of the tranche is \$261.0M, by the end of the payment period (January, 2032), \$260.99M will be paid off. The remaining principal outstanding should be \$0.01M (which represents 0.0% of the tranche balance). Total interest payments of the tranche will total approximately \$13.81M.

Tranche A1B

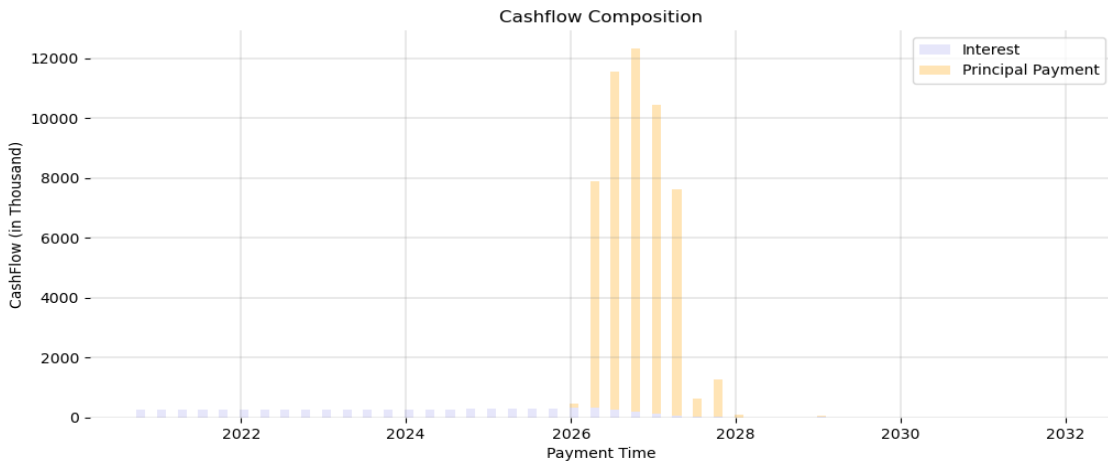
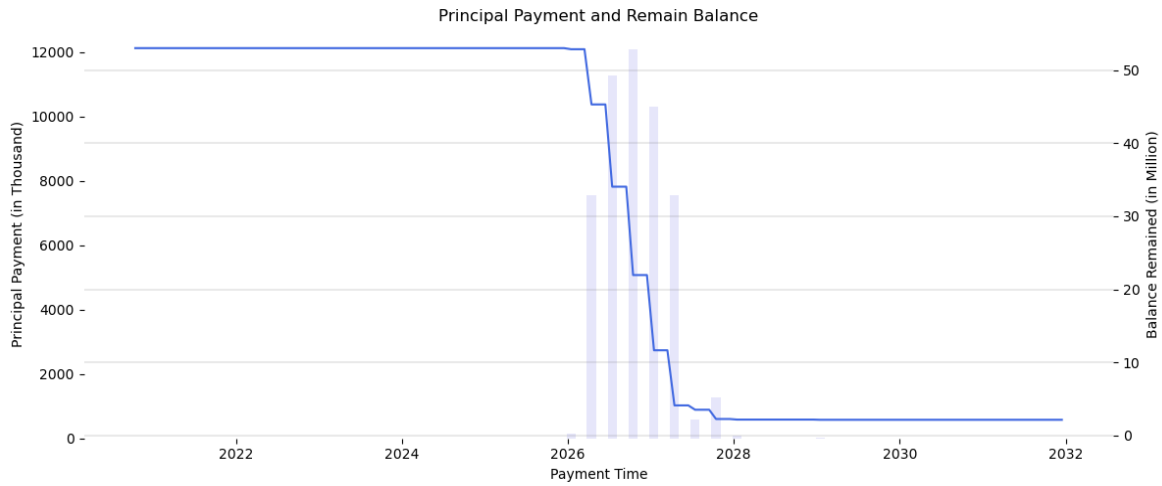
Tranche Information 1	Content 1	Tranche Information 2	Content 2
ORIGINAL BALANCE (\$ Million)	28	IC TEST TRIGGER	115.00
CURRENT BALANCE (\$ Million)	28	CURRENT IC	250.85
TRANCHE SPECIFIC STRESSED PD	66.79	OC TEST TRIGGER	114.10
EJR MODEL IMPLIED RATING	AA- (sf)	CURRENT OC	120.10
UNCOVERED BALANCE (assets at MV) (\$ Million)	0	UNCOVERED RATIO (assets at MV) (%)	0.00
UNCOVERED BALANCE (assets at Par) (\$ Million)	0	UNCOVERED RATIO (assets at Par) (%)	0.00



According to the weighted average cashflow output (under EJR's AA- (sf) stress level of the whole life default rate, and assuming 50% loss will happen evenly in the first year, remaining 50% will happen evenly in the next 4 years), the payment window for this tranche ranges from October, 2020 to January, 2032. The current principal balance of the tranche is \$28.0M, by the end of the payment period (January, 2032), \$26.98M will be paid off. The remaining principal outstanding should be \$1.02M (which represents 3.64% of the tranche balance). Total interest payments of the tranche will total approximately \$3.25M.

Tranche A2

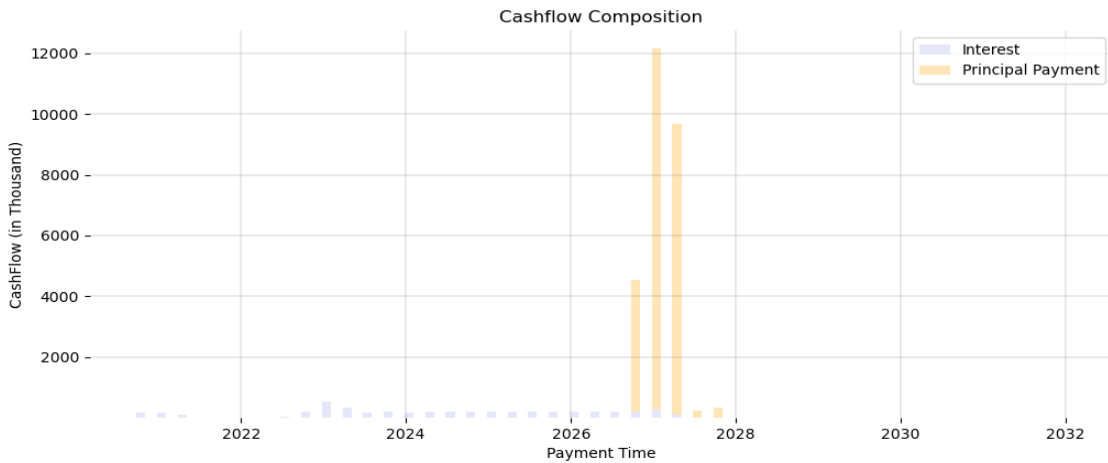
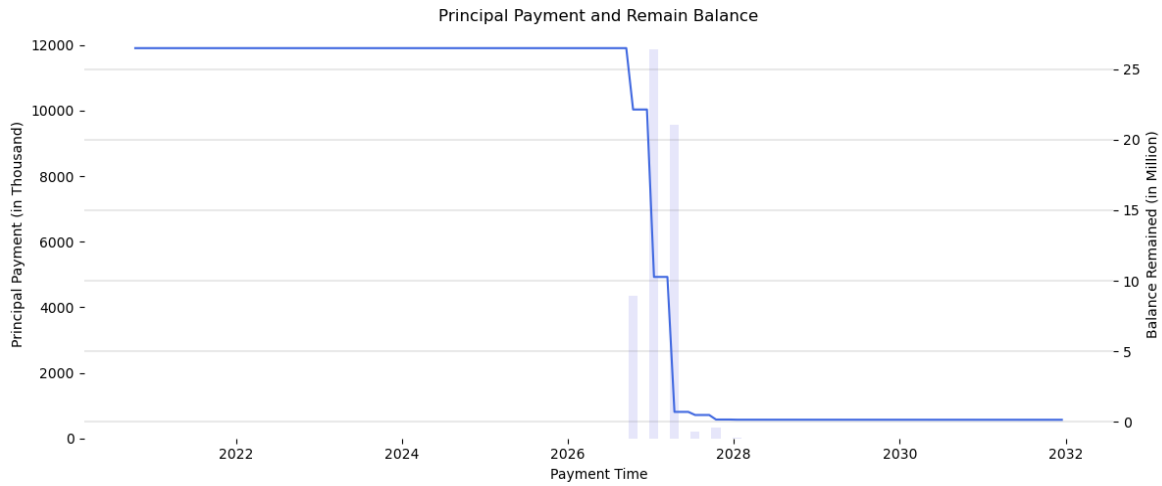
Tranche Information 1	Content 1	Tranche Information 2	Content 2
ORIGINAL BALANCE (\$ Million)	53	IC TEST TRIGGER	115.00
CURRENT BALANCE (\$ Million)	53	CURRENT IC	250.85
TRANCHE SPECIFIC STRESSED PD	61.97	OC TEST TRIGGER	114.10
EJR MODEL IMPLIED RATING	BBB- (sf)	CURRENT OC	120.10
UNCOVERED BALANCE (assets at MV) (\$ Million)	0	UNCOVERED RATIO (assets at MV) (%)	0.00
UNCOVERED BALANCE (assets at Par) (\$ Million)	0	UNCOVERED RATIO (assets at Par) (%)	0.00



According to the weighted average cashflow output (under EJR's BBB- (sf) stress level of the whole life default rate, and assuming 50% loss will happen evenly in the first year, remaining 50% will happen evenly in the next 4 years), the payment window for this tranche ranges from October, 2020 to January, 2032. The current principal balance of the tranche is \$53.0M, by the end of the payment period (January, 2032), \$50.85M will be paid off. The remaining principal outstanding should be \$2.15M (which represents 4.06% of the tranche balance). Total interest payments of the tranche will total approximately \$7.17M.

Tranche B

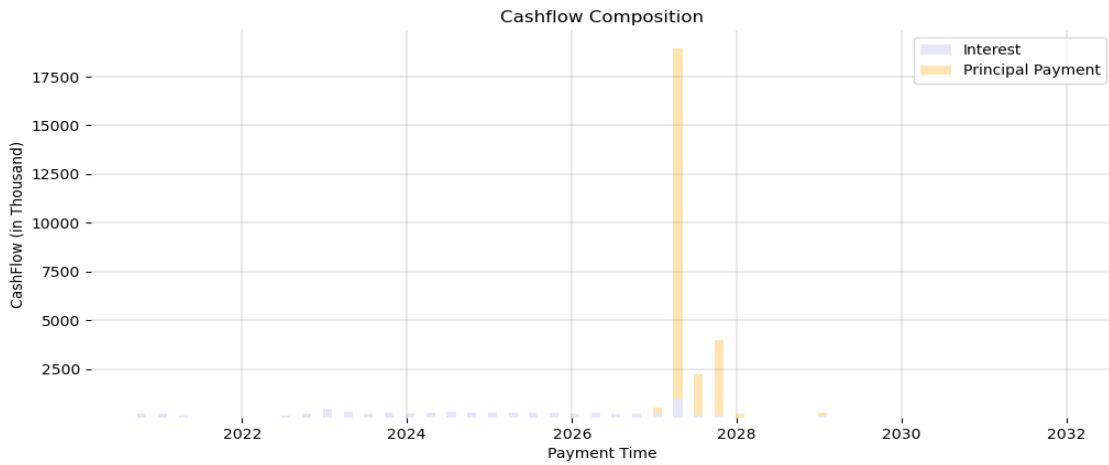
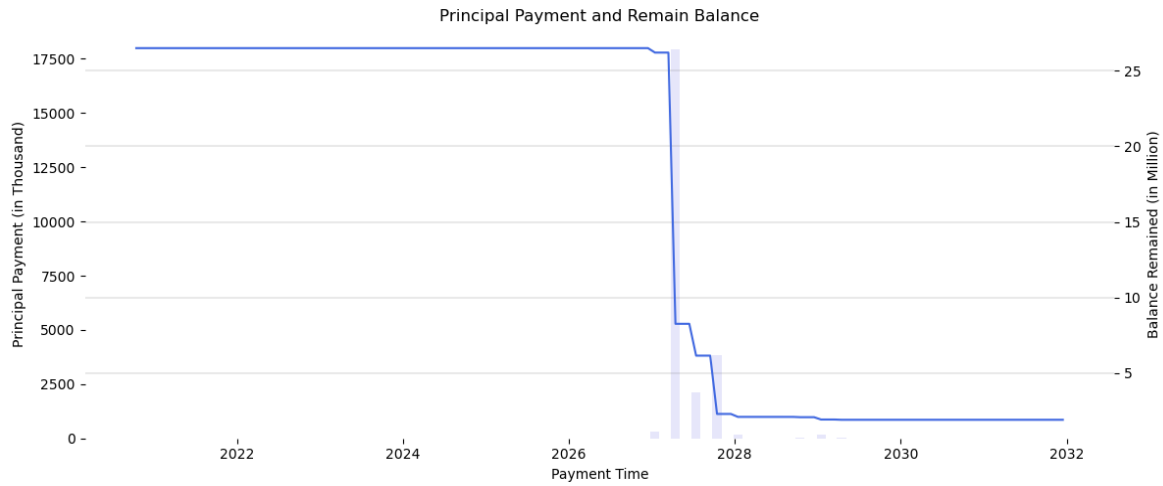
Tranche Information 1	Content 1	Tranche Information 2	Content 2
ORIGINAL BALANCE (\$ Million)	26.5	IC TEST TRIGGER	115.00
CURRENT BALANCE (\$ Million)	26.5	CURRENT IC	250.85
TRANCHE SPECIFIC STRESSED PD	55.66	OC TEST TRIGGER	114.10
EJR MODEL IMPLIED RATING	BB- (sf)	CURRENT OC	120.10
UNCOVERED BALANCE (assets at MV) (\$ Million)	0	UNCOVERED RATIO (assets at MV) (%)	0.00
UNCOVERED BALANCE (assets at Par) (\$ Million)	0	UNCOVERED RATIO (assets at Par) (%)	0.00



According to the weighted average cashflow output (under EJR's BB- (sf) stress level of the whole life default rate, and assuming 50% loss will happen evenly in the first year, remaining 50% will happen evenly in the next 4 years), the payment window for this tranche ranges from October, 2020 to January, 2032. The current principal balance of the tranche is \$26.5M, by the end of the payment period (January, 2032), \$26.37M will be paid off. The remaining principal outstanding should be \$0.13M (which represents 0.49% of the tranche balance). Total interest payments of the tranche will total approximately \$4.57M.

Tranche C

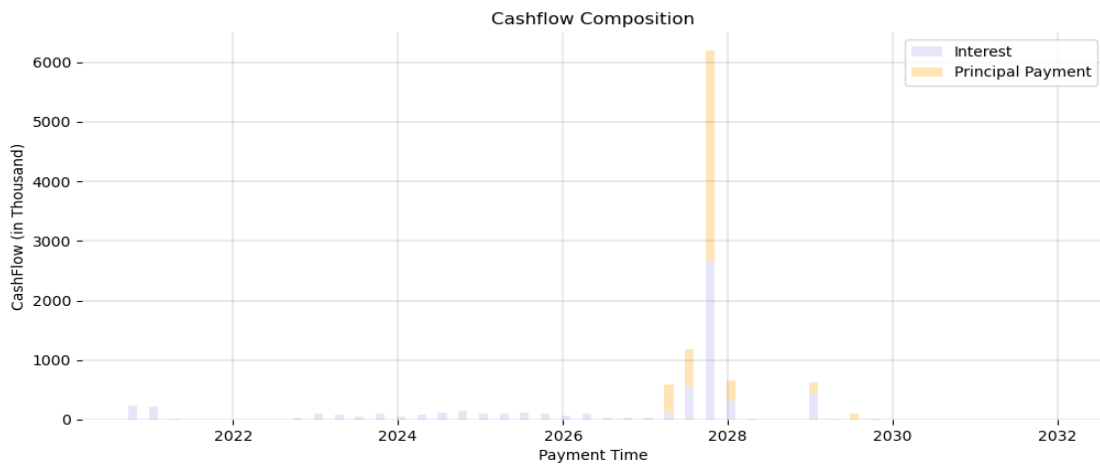
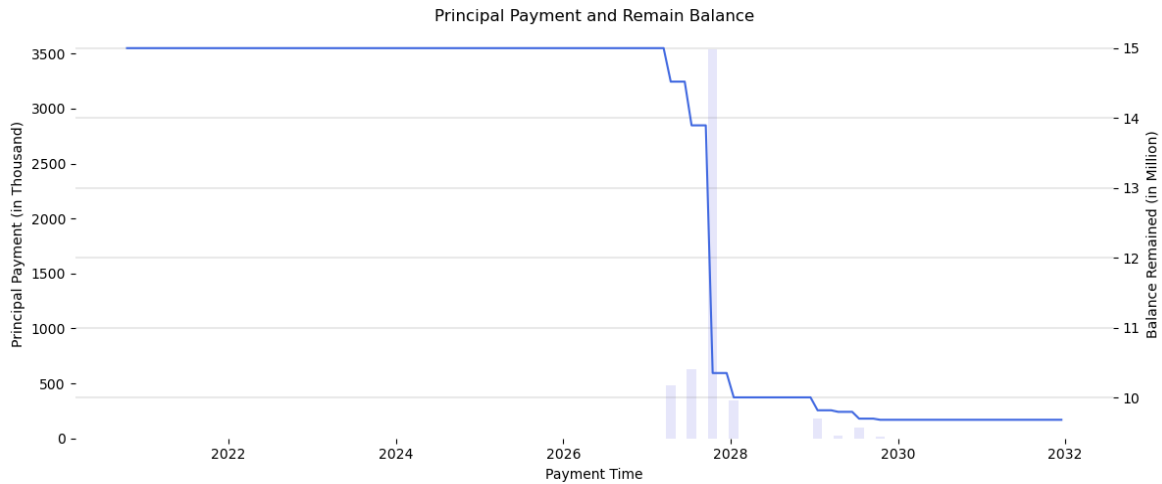
Tranche Information 1	Content 1	Tranche Information 2	Content 2
ORIGINAL BALANCE (\$ Million)	26.5	IC TEST TRIGGER	110.00
CURRENT BALANCE (\$ Million)	26.5	CURRENT IC	219.17
TRANCHE SPECIFIC STRESSED PD	44.53	OC TEST TRIGGER	107.90
EJR MODEL IMPLIED RATING	B (sf)	CURRENT OC	112.05
UNCOVERED BALANCE (assets at MV) (\$ Million)	0	UNCOVERED RATIO (assets at MV) (%)	0.00
UNCOVERED BALANCE (assets at Par) (\$ Million)	0	UNCOVERED RATIO (assets at Par) (%)	0.00



According to the weighted average cashflow output (under EJR's B (sf) stress level of the whole life default rate, and assuming 50% loss will happen evenly in the first year, remaining 50% will happen evenly in the next 4 years), the payment window for this tranche ranges from October, 2020 to January, 2032. The current principal balance of the tranche is \$26.5M, by the end of the payment period (January, 2032), \$24.6M will be paid off. The remaining principal outstanding should be \$1.9M (which represents 7.17% of the tranche balance). Total interest payments of the tranche will total approximately \$6.69M.

Tranche D

Tranche Information 1	Content 1	Tranche Information 2	Content 2
ORIGINAL BALANCE (\$ Million)	15	IC TEST TRIGGER	N/A
CURRENT BALANCE (\$ Million)	15	CURRENT IC	N/A
TRANCHE SPECIFIC STRESSED PD	37.11	OC TEST TRIGGER	105.8
EJR MODEL IMPLIED RATING	CCC (sf)	CURRENT OC	107.95
UNCOVERED BALANCE (assets at MV) (\$ Million)	0	UNCOVERED RATIO (assets at MV) (%)	0
UNCOVERED BALANCE (assets at Par) (\$ Million)	0	UNCOVERED RATIO (assets at Par) (%)	0



According to the weighted average cashflow output (under EJR's CCC (sf) stress level of the whole life default rate, and assuming 50% loss will happen evenly in the first year, remaining 50% will happen evenly in the next 4 years), the payment window for this tranche ranges from October, 2020 to January, 2032. The current principal balance of the tranche is \$15.0M, by the end of the payment period (January, 2032), \$5.31M will be paid off. The remaining principal outstanding should be \$9.69M (which represents 64.6% of the tranche balance). Total interest payments of the tranche will total approximately \$6.05M.

EJR's Key Rating Features & Differences Compare With Other NRSROs

Below is a summary of EJ's approach (see our Methodology for a more complete description):

1. Our rating is derived from estimated losses.
2. To reflect the current bearish credit conditions, assets in the collateral pool are assumed to be one notch lower than that currently assigned by other NRSROs.
3. The probabilities of default and estimated losses utilized are generally more conservative than industry standards.
4. Similarly, the recovery rates applied are lower relative to industry benchmarks.
5. EJ's analysis is conducted using information and cash flow engines supplied by a recognized industry service provider.
6. Subject to economic conditions, EJ may cap its highest rating at "AA" and apply an additional downgrade of up to two notches for each tranche.

Difference Between Implied Rating and Assigned Rating

There is no difference between model implied rating and final assigned rating.

SEC Rule 17g-7(a) Disclosure

Below are the disclosures as required by Paragraph (a) of Rule 17g-7.

1. The symbol in the rating scale used to denote the credit rating categories and notches within categories and the identity of the obligor, security, or money market instrument as required by Paragraph (a)(1)(ii)(A) of Rule 17g-7:

There are three notches in each of EJR's rating category (e.g., A-(sf), A(sf) and A+(sf) for category A(sf)) except for AAA(sf), CC(sf), C(sf) and D(sf).

2. The version of the procedure or methodology used to determine the credit rating as required by Paragraph (a)(1)(ii)(B) of Rule 17g-7:

We are using the EJR CLO Methodology (Non-NRSRO) version 1 published by Apr 22, 2020, the General Methodology for Rating Asset Backed and Structured Finance Obligations version 1 published by May 29, 2020, and the Methodologies for Determining Credit Ratings (Main Methodology) version 14 published by Feb 03, 2020.

3. The main assumptions and principles used in constructing the procedures and methodologies used to determine the credit rating as required by Paragraph (a)(1)(ii)(C) of Rule 17g-7:

The credit rating assigned reflects EJR's judgement regarding the future credit quality of the issue. The major assumptions used to construct the methodologies include:

- 1). Past data reflects the performance and credit worthiness of the pooled assets and is useful for analysis.
- 2). Financial and credit information that EJR gets from the issuer or the third party is reliable and accurate.
- 3). The economy and regulation policies will remain stable in the foreseeable future.

Specific quantitative assumptions used in this credit analysis applied to the collateral assets, which include Default Rate and Recovery Rate. According to the methodology, EJR converts the collateral assets into numbers of identical independent assets with the same default rate and recovery rate. The number of these converted assets is the Diversity Score.

4. The potential limitations of the credit rating as required by Paragraph (a)(1)(ii)(D) of Rule 17g-7:

EJR's rating pertains solely to EJR's view of current and prospective credit quality. EJR's rating does not address pricing, liquidity or other risks associated with holding investments in the issuer. EJR ratings

- 1). Are not intended to address the value, price, price stability, liquidity, suitability, or merit of an investment.
- 2). Do not address investment merit, whether a particular rated security is suitable for a particular investor or suitable for an investor's risk tolerance.
- 3). Do not address whether the expected return of a particular investment is adequate for the inherent risk.
- 4). Do not address whether the market value of the security will remain stable over time.
- 5). Are not exact measures of the probability of default but are instead expressions of the relative credit risk of issuers and debt instruments.
- 6). Are not recommendations to buy, sell or hold any security.

5. Information on the uncertainty of the credit rating as required by Paragraph (a)(1)(ii)(E) of Rule 17g-7:

EJR's rating is dependent on numerous factors including the reliability, accuracy, and quality of the data used in determining the credit rating. The data is sourced from issuers' publicly disclosed reports, or from third-party data vendors. For solicited rating reports, EJR may also use the information provided by the client. In some cases, the information is limited because of issues such as the lack of reported data. Such shortcomings are not always readily apparent. EJR aims to identify such shortcomings and make adjustments using its best judgement.

6. Whether and to what extent third-party due diligence services have been used in taking the rating action as required by Paragraph (a)(1)(ii)(F) of Rule 17g-7:

EJR does not utilize third-party due diligence services.

7. How servicer or remittance reports were used, and with what frequency, to conduct surveillance of the credit rating as required by Paragraph (a)(1)(ii)(G) of Rule 17g-7:

EJR did not conduct surveillance of this rating.

8. A description of the data that were relied upon for the purpose of determining the credit rating as required by Paragraph (a)(1)(ii)(H) of Rule 17g-7:

EJR uses the third-party data vendor obtain essential data for ratings on this ABS product.

9. A statement containing an overall assessment of the quality of information available and considered in the credit rating as required by Paragraph (a)(1)(ii)(I) of Rule 17g-7:

The information used in this analysis is generally of high quality.

10. Information relating to conflicts of interest as required by Paragraph (a)(1)(ii)(J) of Rule 17g-7:

This rating is unsolicited.

11. An explanation or measure of the potential volatility of the credit rating as required by Paragraph (a)(1)(ii)(K) of Rule 17g-7:

EJR's rating aims to assess the possible loss of investing in the obligations. Factors which affect such projection, and in turn EJ's rating, include changes in the credit worthiness of the collateral assets, changes in the correlation between them, and overall economic changes.

12. Information on the content of the credit rating as required by Paragraph (a)(1)(ii)(L) of Rule 17g-7:

- 1). As this is a new credit rating, historical performance is not applicable.
- 2). As discussed in EJ's CLO Methodology, EJ attempts to calculate the weighted average default probability of the portfolio by using EJ's Weighted Average Rating Score (WARS) approach. EJ's ratings of CLO tranches are based on the estimated losses (EL) generated by applying default scenarios based on likelihood of occurrence. However, EJ's credit ratings are not based on absolute measures of probability of default and expected loss. EJ's credit ratings are opinions about the relative creditworthiness of an entity or an instrument.

13. Information on the sensitivity of the credit rating to assumptions as required by Paragraph (a)(1)(ii)(M) of Rule 17g-7:

See the section in this report entitled "Stress Analysis".

14. If the credit rating is assigned to an asset-backed security, a description of: (i) the representations, warranties, and enforcement mechanisms available to investors; and (ii) how they differ from the representations, warranties, and enforcement mechanisms in issuances of similar securities, as required by Paragraph (a)(1)(ii)(N) of Rule 17g-7:

Such information in this analysis is non-public. Hence EJ has determined that this disclosure doesn't apply to this report.

Disclaimer

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