

Japan Credit Rating Agency, Ltd. (JCR) announces the following credit rating.

Nippon Sheet Glass Company, Limited (security code: 5202)

<Affirmation>

Long-term Issuer Rating: BB+
Outlook: Negative
CP: J-3

Rationale

- (1) Nippon Sheet Glass Company, Limited (the "Company") is a glass manufacturer established in 1918. It is engaged in mainstay architectural glass and automotive glass businesses, while offering technical glass products including ultra-thin glass for small display, lenses for printers and glass fibers. The Company in 2006 acquired a major UK-based peer Pilkington plc and became a world-class glass manufacturer. The Company has been expanding glass for solar panels, and started operation of a new float furnace in North America in November 2020. It also plans to complete the construction of a float furnace for architectural glass in South America as soon as possible, which has been delayed due to expansion of COVID-19 pandemic.
- (2) The Company posted a net loss for 2 years in a row in the fiscal year ended March 2021 (FY2020). In addition to a large drop in demand for glass due to expansion of COVID-19 pandemic, it also recorded expenses related to facility shutdowns and structural reforms. On the other hand, the current business environment is improving, and quarterly operating income has been recovering since it bottomed out in the first quarter of FY2020. JCR therefore believes that the impairment of equity capital can be stopped. Based on the above, JCR has affirmed the ratings. However, as the outlook on the business environment remains uncertain and it may take time for the Company's financial base to recover, JCR maintained the Negative outlook on the rating.
- (3) For FY2020, the Company posted an operating income of 13.0 billion yen (down 38.3% YoY) and a net loss of 16.9 billion yen (a loss of 18.9 billion yen for FY2019). The main reason for the decline in operating income was a decrease in sales volume, mainly that of automotive glass. In addition, the Company recorded 16.0 billion yen as COVID-19 pandemic related costs, and also a restructuring cost of 14.7 billion yen including severance cost associated with personnel reduction as an exceptional item. For FY2021, the Company plans to post an operating income of 22.0 billion yen and a net income of 9.0 billion yen. Demands for both architectural and automotive glasses are expected to recover. In addition, a gain on the transfer of the battery separator business is also expected. On the other hand, outlook for the business environment remains uncertain due to the shortage of semiconductors for automotive applications, expansion of COVID-19 variants, and rising raw material and fuel costs. JCR will continue to follow as to whether the Company can make the recovery in business performance more certain through expansion of high value-added businesses and cost structure reforms.
- (4) The ratio of equity attributable to owners of the parent at the end of FY2020 was 7.6%, worsened from 9.6% at the end of FY2019, and the equity attributable to owners of the parent at the end of FY2020 was 62.9 billion yen, down by half from the end of FY2017 when it was the largest in the most recent years. Furthermore, interest-bearing debt has also been on the rise in recent years due to aggressive capital investments. On the other hand, the Company has secured a certain amount of liquidity on hand through cash and deposits and unused credit lines. Going forward, it plans to generate free cash flow and net income on an ongoing basis by curbing total capital expenditures and implementing structural reforms to improve its financial structure.

Hajime Inoue, Takahiko Yamaguchi

Rating

Issuer: Nippon Sheet Glass Company, Limited

<Affirmation>

Long-term Issuer Rating: BB+ Outlook: Negative
CP: J-3
Maximum: JPY 40 billion



Rating Assignment Date: June 7, 2021

The assumptions for the credit ratings and the definitions of the rating symbols are published as "Types of Credit Ratings and Definitions of Rating Symbols" (January 6, 2014) in Information about JCR Ratings on JCR's website (<https://www.jcr.co.jp/en/>).

Outline of the rating methodology is shown as "JCR's Rating Methodology" (November 7, 2014) and "Glass" (May 29, 2020) in Information about JCR Ratings on JCR's website (<https://www.jcr.co.jp/en/>).

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JCR publishes its press releases regarding the rating actions both in Japanese and in English on the same day. In case that it takes time to translate rating rationale, JCR may publicize the summary version, which will be replaced by the full translated version within three business days. (Regarding Structured Finance products, JCR only publicize the summary version in English.)

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INFORMATION DISCLOSURE FORM

Japan Credit Rating Agency, Ltd.

Disclosure Required by Paragraph (a)(1)(ii) of Rule 17g-7

Issuer:	Nippon Sheet Glass Company, Limited
Rating Publication Date:	June 10, 2021

1 The Symbol, Number, or Score in the Rating Scale used to Denote Credit Rating Categories and Notches and, the Identity of the Obligor or the Identity and a Description of the Security or Money Market Instrument as Required by Paragraph (a)(1)(ii)(A) of Rule 17g-7

- Please see the news release. If the credit rating is a private rating, please see the report for private rating.

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

- Please see the news release. If the credit rating is a private rating, please see the report for private rating.

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 methodology assumes, in principle, to be applied to assess the likelihood of a given debt payment in light of its issuer's condition and business environment, etc. in the relevant future. There is certain limitation, however, in the time horizon that the rating foresees.
- The credit rating methodology assumes, in principle, that the factors posted in the below are particularly important for such likelihood to be determined, and that the rating determination is made by evaluating each of them not only quantitatively but also employing qualitative analyses.

A) Business Bases

The likelihood of a given debt payment is highly conditional to its issuer's business bases - how they can be maintained/ expanded into the future and thereby secure earnings and cash flows in adequacy and in a sustainable way.

B) Financial Grounds and Asset Quality

The likelihood of debt payment is highly dependent on the degree of the issuer's indebtedness and loss absorption capacity in terms of equity capital. Also notable is that a financial institution might see a significant loss of financial grounds as a result of changes in value of the assets under its possession.

C) Liquidity Positions

The likelihood of debt payment is highly dependent on the adequacy of the issuer's cash and other sources of repayment (liquidity positions).

D) Related Parties' Status and Stance of Support/ Assistance for the Issuer

The likelihood of debt payment is affected one way or the other by the issuer's related parties such as parent company, subsidiary, guarantor, and the government of the issuer's business domicile, etc. - by their own conditions and/ or position of support/ assistance for the issuer.

E) Order of Seniority in Debt Payment

The likelihood of debt payment can be different between given debts of the same issuer. The likelihood of debt payment for an individual debt is dependent on the issuer's discretion, and/ or its rank relative to other debts of the same issuer in the order of seniority in principal/ interest payment which is determined by design as financial product or by laws, etc.

4 The Potential Limitations of the Credit Rating as Required by Paragraph (a)(1)(ii)(D) of Rule 17g-7

- The credit rating herewith presented by JCR is its summary opinion with regard to the likelihood of given debt payment and hence not necessarily a perfect representation of such likelihood. The credit rating is not intended to estimate the probability of default or the loss on given default, either.
- The objective of the credit rating herewith presented does not include any concerns other than the likelihood of debt payment, such as risks of price changes, market liquidity, etc.
- The credit rating herewith presented is necessary to be reviewed along with possible changes of the issuer of rated objects in its business performance and/ or circumstances which include regulatory environment, and hence subject to possible alteration.

5 Information on the Uncertainty of the Credit Rating as Required by Paragraph (a)(1)(ii)(E) of Rule 17g-7

- The information used for the determination of credit rating as herewith presented is obtained by JCR from the issuer of rated objects and other sources that JCR trusts in terms of accuracy and reliability but possibly contains errors due to human, non-human or other causes. Consequently, the credit rating determined on the grounds of such information does not constitute, explicitly or implicitly, any representation or warrant of JCR on the information itself or any consequences of its use in terms of accuracy, relevance, timeliness, wholeness, market value, or usefulness for any specific purposes.

6 Use of Due Diligence Services of a Third Party in Taking the Rating Action as Required by Paragraph (a)(1)(ii)(F) of Rule 17g-7

- There is no use of any third-party due diligence service in the determination of the credit rating herewith presented.

7 Use of Servicer or Remittance Reports to Conduct Surveillance of the Credit Rating Required by Paragraph (a)(1)(ii)(G) of Rule 17g-7

- There is no use of any servicer or remittance report to conduct surveillance of the credit rating herewith presented.

8 The Types of Data Relied Upon for the Purpose of Determining the Credit Rating as Required by Paragraph (a)(1)(ii)(H) of Rule 17g-7

- The information posted in the below, which includes data, is used for the determination of the credit rating herewith presented.

A) Audited financial statements presented by the rating stakeholders

B) Explanations of business performance, management plans, etc. presented by the rating stakeholders

9 Overall assessment of the Quality of Information Available and Considered in Determining the Credit Rating as Required by Paragraph (a)(1)(ii)(I) of Rule 17g-7

- JCR holds its basic policies for securing the quality of information as a base of due diligence for the determination of credit ratings. The information used as a base for the determination of credit rating herewith presented satisfies such policies, which include the audit by an independent auditor, the warranty made by the issuer, the publication by the issuer, some independent media or, otherwise, JCR analyst's scrutiny, etc.
- JCR sees no particular weakness in the quality of information used for the determination of the credit rating herewith presented as compared to the information used in other cases of the credit rating for comparable issuers or ratable objects.
- If the credit rating is an Indication, please see the report for Indication.

10 Information Relating to Conflicts of Interest as Required by Paragraph (a)(1)(ii)(J) of Rule 17g-7

- JCR receives payment of compensation for the determination of the credit rating herewith presented from either one of those parties who are issuer, underwriter, depositor or sponsor.
- JCR did not receive in the last fiscal year in the past payment of compensation from the same party for any kind of JCR's service other than the determination of public or private credit rating, such as one in the ancillary business.

11 Explanation or Measure of the Potential Volatility of the Credit Rating as Required by Paragraph (a)(1)(ii)(K) of Rule 17g-7

A) Business Bases

The credit rating is subject to alteration if there is improvement or deterioration of the issuer's business bases, since its revenue, etc. may improve or deteriorate by the change in its business management policies, clients' preferences, competitive situation, or a technological innovation. The resultant alteration of the credit rating is usually by a notch, with possibility of a few notches if and when the change in the business bases is large.

B) Financial Grounds and Asset Quality

The credit rating is subject to alteration if the issuer increases/ decreases its debt/ capital or vice versa and thereby makes its individual debt payment liability less or more bearable and its loss absorption capacity into the future decreased or increased. Also, the changes in the quality of asset under the issuer's holding may affect the credit rating, since such changes could raise or lower the likelihood of future loss of the issuer's financial grounds. The resultant alteration of the credit rating is usually by a notch, with possibility of a few notches if and when the change in the financial grounds and/ or asset quality is large.

C) Liquidity Positions

The credit rating is subject to alteration if there is a change in the issuer's financial management policy or in the relations with fund procurement sources and the change thereby makes its liquidity positions improve or deteriorate. The resultant alteration of the credit rating is usually by a notch, with possibility of a few notches if and when the change is large.

D) Related Parties' Status and Stance of Support/ Assistance for the Issuer

The credit rating is subject to alteration if there is a change in the issuer's parent company or subsidiary, guarantor or other provider of credit enhancement, or the government of the issuer's business domicile, or other related parties' own conditions and/ or position of support/ assistance for the issuer, and the change thereby makes its business bases, financial grounds and/ or liquidity positions improve or deteriorate, and/ or making the effectiveness of guarantee and other credit enhancement improve or deteriorate. The resultant alteration of the credit rating is usually a notch, with possibility of a few notches if and when the change is large.

E) Order of Seniority in Debt Payment and Non-Payment Forgiven by Contract

The credit rating is subject to alteration if there is a change in the rated debt's status in the order of seniority relative to other debts caused by the improvement/ deterioration of the issuer's financial condition. The resultant alteration of the credit rating is usually a notch, with possibility of a few notches if and when the change is large. Also, in case of the financial products for which non-payment of interest/ principal is contractually permissible, the credit rating is subject to alteration if and when the likelihood of such non-payment is projected to increase or decrease. The resultant alteration of the credit rating could be by a notch but often as much as a few notches.

F) Rise and Fall in General Economy and Markets

The credit rating is subject to alteration if there is a rise/ fall in the general economy and/ or the markets inducing the issuer's revenues/ expenses to increase/ decrease and vice versa, etc. The resultant alteration of the credit rating is usually by a notch, with possibility of a few notches if and when the change is exceptionally large.

G) Various Events

The credit rating is subject to alteration on occurrence of various events, such as change in the issuer's major shareholders, M&A and other organizational change, accident, violation of the law, litigation, legal/ regulatory change, natural disaster, etc., which are unforeseeable at the time when the credit rating is determined, causing a significant change on the issuer's business bases, financial grounds, etc. The resultant alteration of the credit rating could be by a notch but more often than not as much as a few notches.

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Information on the Content of the Credit Rating, Including the Historical Performance of the Credit Rating and the Expected Probability of Default and the Expected Loss in the Event of Default as Required by Paragraph (a)(1)(ii)(L) of Rule 17g-7

- Historical records of the credit rating herewith presented are posted in the end of this paper.
- The credit rating herewith presented by JCR is its summary opinion with regard to the likelihood of given debt payment and hence not necessarily a perfect representation of such likelihood. The credit rating is not intended to estimate the probability of default or the loss on given default, either.
- Facts of the probability of default are posted as Form NRSRO Exhibit 1 on the JCR website under the URL:

<https://www.jcr.co.jp/en/service/company/regu/nrsro/>

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Information on the Sensitivity of the Credit Rating to Assumptions Made as Required by Paragraph (a)(1)(ii)(M) of Rule 17g-7

A) Business Bases

The credit rating herewith presented could be changed if and when the assumptions made at the time of its determination turn out to be inaccurate with regard to the issuer's business bases and powers of earning or cash flow generation, etc. The resultant change of the credit rating is most likely by a notch, as JCR speculates, but possibly as much as a few notches if the development is rapid in improvement or deterioration of the issuer's business bases on some drastic change in the operational environments, etc.

B) Financial Grounds and Asset Quality

The credit rating herewith presented could be changed if and when the assumptions made at the time of its determination turn out to be inaccurate with regard to the issuer's financial grounds and asset

quality. The resultant change of the credit rating is most likely by a notch, as JCR speculates, but possibly as much as a few notches if the development is rapid in improvement or deterioration of the issuer's financial grounds and/ or asset quality on some drastic change in its business bases.

C) Liquidity Risks

The credit rating herewith presented could be changed if and when the assumptions made at the time of its determination turn out to be inaccurate with regard to the issuer's liquidity positions. The resultant change of the credit rating is most likely by a notch, as JCR speculates, but possibly as much as a few notches if the development is rapid in improvement or deterioration of the issuer's liquidity positions on some drastic change in its financial management policy or relations with fund procurement sources, etc.

D) Order of Seniority in Debt Payment and Non-Payment Forgiven by Contract

The credit rating herewith presented could be changed if and when the assumptions made at the time of its determination turn out to be inaccurate with regard to the order of seniority in repayment of interests and principal. JCR assumes the resultant change of the credit rating is most likely by a notch. The change could be as much as a few notches if the issuer's financial structure differs so much and thereby the balance between debts shifted so greatly. Rating change is also possible in case of the financial products for which non-payment of interest/ principal is contractually permissible, if and when the assumptions made at the time of its determination turns out to be inaccurate. The change of the credit rating is assumed to be by a notch but often as much as a few notches.

E) Rise and Fall in General Economy and Markets

The credit rating herewith presented could be changed if and when the assumptions made at the time of its determination turn out to be inaccurate with regard to the prospects of general economy and markets. JCR expects the change should be most likely by a notch but could be as much as a few notches, should the economy or the markets change so greatly.

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Information on the Representations, Warranties, and Enforcement Mechanisms of an Asset-backed Security as Required by Paragraph (a)(1)(ii)(N) of rule 17g-7

- The credit rating herewith presented is not for an ABS product, and hence no relevant issue.

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The Historical Performance of the Credit Rating

Issuer Name	Issue Name	Publication Date	Rating	Outlook/Direction
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	February 3, 2006	A-	Stable
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	February 27, 2006	#A-	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	July 21, 2006	BBB+	Stable
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	September 27, 2007	BBB+	Stable
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	September 16, 2008	BBB+	Stable
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	January 15, 2010	BBB+	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	May 23, 2011	BBB+	Stable
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	February 2, 2012	#BBB+	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	March 23, 2012	BBB	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	August 28, 2013	BBB-	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	October 2, 2014	BBB-	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	February 10, 2016	BBB-	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	March 31, 2016	#BB+	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	July 26, 2016	BB+	Negative
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	September 21, 2017	BB+	Stable
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	December 4, 2018	BB+	Stable
Nippon Sheet Glass Company, Limited	Issuer(Long-term)	May 27, 2020	BB+	Negative
Nippon Sheet Glass Company, Limited	CP	November 13, 1990	J-1	
Nippon Sheet Glass Company, Limited	CP	April 21, 1993	J-1	
Nippon Sheet Glass Company, Limited	CP	June 19, 1995	J-1	
Nippon Sheet Glass Company, Limited	CP	September 9, 1996	J-1	
Nippon Sheet Glass Company, Limited	CP	December 26, 1997	J-1	
Nippon Sheet Glass Company, Limited	CP	August 3, 1998	J-1	
Nippon Sheet Glass Company, Limited	CP	March 27, 2001	J-1	
Nippon Sheet Glass Company, Limited	CP	December 9, 2002	J-1	
Nippon Sheet Glass Company, Limited	CP	August 26, 2003	J-1	
Nippon Sheet Glass Company, Limited	CP	December 14, 2004	J-1	
Nippon Sheet Glass Company, Limited	CP	February 3, 2006	J-1	
Nippon Sheet Glass Company, Limited	CP	February 27, 2006	#J-1	Negative
Nippon Sheet Glass Company, Limited	CP	July 21, 2006	J-2	
Nippon Sheet Glass Company, Limited	CP	September 27, 2007	J-2	
Nippon Sheet Glass Company, Limited	CP	September 16, 2008	J-2	
Nippon Sheet Glass Company, Limited	CP	January 15, 2010	J-2	
Nippon Sheet Glass Company, Limited	CP	May 23, 2011	J-2	
Nippon Sheet Glass Company, Limited	CP	March 23, 2012	J-2	
Nippon Sheet Glass Company, Limited	CP	August 28, 2013	J-2	
Nippon Sheet Glass Company, Limited	CP	October 2, 2014	J-2	
Nippon Sheet Glass Company, Limited	CP	February 10, 2016	J-2	
Nippon Sheet Glass Company, Limited	CP	March 31, 2016	#J-3	Negative
Nippon Sheet Glass Company, Limited	CP	July 26, 2016	J-3	
Nippon Sheet Glass Company, Limited	CP	September 21, 2017	J-3	
Nippon Sheet Glass Company, Limited	CP	December 4, 2018	J-3	
Nippon Sheet Glass Company, Limited	CP	May 27, 2020	J-3	

Attestation Required by Paragraph (a)(1)(iii) of Rule 17g-7

I, Shigenobu Tonomura, have responsibility to this Rating Action and to the best of my knowledge:

- A) No part of the credit rating was influenced by any other business activities.
- B) The credit rating was based solely upon the merits of the obligor, security, or money market instrument being rated.
- C) The credit rating was an independent evaluation of the credit risk of the obligor, security, or money market instrument.

殷村 成信

Shigenobu Tonomura

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