

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: Stable  
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 the leading UK-based peer Pilkington plc and became a world-class glass manufacturer. In 2018, it announced plans for new investment in solar glass capacity expansion in North America and the building of a new float glass plant in South America. The Company aims to secure a solid position in growing markets for both business domains.
- (2) The Company's business performance is expected to remain strong for the time being. Income recovery is attributable to solid demand growth as well as initiatives for productivity improvement and expanded sales of high value-added products. The risk of recording a heavy deficit has been lowered, since the Company withdrew from underperforming businesses and promoted structural reforms. On the other hand, a new investment plan is expected to increase the fund burden on the Company, while there still remains room for improvement of its financial position. Nevertheless, the Company has recently been enhancing its cash flow generating capacity along with improved results and will probably be able to improve its financial position in the medium to long term. Based on the above, JCR affirmed the ratings on the Company with Stable outlook.
- (3) For the fiscal year ending March 2019 (FY2018), the Company expects to earn operating profit of 41.0 billion yen, a 15.1% increase from the previous year, and profit attributable to owners of the parent of 14.0 billion yen, up 127.1% year on year. Rises in costs of raw materials, fuel, etc., will be offset by increased sales of automotive glass in Europe, technical glass and other products. Anticipating increasing needs for lightweight and high-precision glass for automobiles, the Company intends to strengthen its earnings capacity by, for instance, increasing the sales of high value-added products using an advanced level of technology. An immediate issue the Company should address is associating the initiatives including more investments in solar panels and emerging country markets with profit growth steadily.
- (4) Total shareholders' equity ratio was 17.8% as of September 30, 2018 (as against 17.1% as of March 31, 2018). It has recently continued to improve at the level, but the pace of improvement is likely to slow due to increased investment and early redemption of preferred shares. Interest-bearing debt will increase along with an increase in investment. JCR will pay attention to the Company's initiatives for improving the financial position, such as asset sales.

Hajime Inoue, Takahiko Yamaguchi

### Rating

Issuer: Nippon Sheet Glass Company, Limited

#### <Affirmation>

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

Rating Assignment Date: November 29, 2018

The criteria used for identifying matters which serve as assumptions for the assessment of the credit status, and the criteria used for setting of grades indicating the results of the assessments of the credit status 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 methodology for determination of the credit rating is shown as "JCR's Rating Methodology" (November 7, 2014), "Glass" (March 26, 2012) 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:	December 4, 2018

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.

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.

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 publication by the issuer or 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.

## 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 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.

## 12

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/>

## 13

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	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	



## The Historical Performance of the Credit Rating

Issuer Name	Issue Name	Publication Date	Rating	Outlook/Direction
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	

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

I, Hiroyuki Chikusa, 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.

千種裕之

Hiroyuki Chikusa

General Manager of Corporate Rating Department II

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