



# **Rating Performance of Project Finance- Summary of 2015 and Aggregated**

**Special Report | March 2016**

**Contact:**

Dr. Avigail Konikov-Livne, Chief Credit Officer

[Avigail.k@midroog.co.il](mailto:Avigail.k@midroog.co.il)

## Preface

The purpose of this report is to present the performance of project finance ratings by Midroog, in 2015 and in total since the company began to issue ratings. The report encompasses the rate of rating transitions (transition matrices) at the annual level and cumulative level, and change in the distribution of ratings and rating outlook.

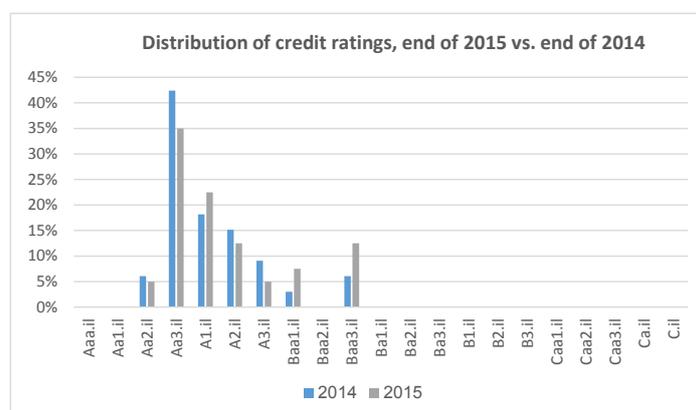
Midroog collates and publishes changes in ratings and accuracy measures in order to create transparency regarding the performance of its ratings. The figures presented below relate to project finance debt ratings. Note that in the years studied, there were no project finance defaults, and hence no calculation of accuracy presented.

In this report, project finance debt (hereinafter: "**credit**") is defined as the number of active obligations of the same seniority level<sup>1</sup> that Midroog was rating at the end of the calendar year. The rated credits include both public and private ratings. Debt ratings for infrastructure companies (other than infrastructure projects) are not included in the statistics presented in this report<sup>2</sup>. The rating taken into account for the calculation of ratings distribution is the project rating (in contrast to the project rating for the operating phase only).

## Distribution of Ratings

As of year-end 2015, Midroog was rating about 40 project finance credits. The median rating of these credits was A1.il.

The following chart presents a breakdown of project finance ratings at year-end 2015 compared with year-end 2014:



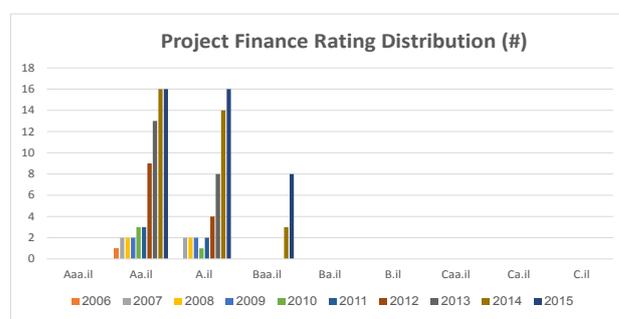
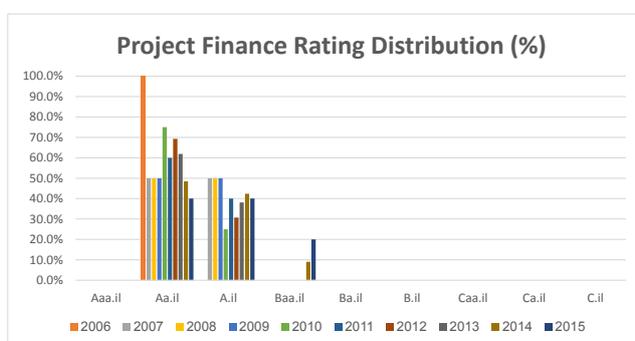
<sup>1</sup> Regarding projects for which both senior and subordinate debt was issued, each type of debt is counted separately. If there are multiple series/loans with the same level of seniority, these debts/loans are counted together.

<sup>2</sup> See the Ratings Performance Report, Corporates and Financial Institutions on the Midroog website.



The proportion of credits rated Aa3.il in the project finance segment dropped from approximately 42% at year-end 2014 to approximately 35% at year-end 2015, mainly due to rating new credits at lower ratings – mainly, their average rating was lower, and also, one rating downgrade. The increase in credits in the Baa.il group was due to downgrades and also, to new ratings in that group last year.

The following charts show a breakdown of ratings by rating group, and the number of rated credits. The changes in the distribution of ratings are mainly due to rating new projects, not a result of rating transitions. For details on rating transitions between categories, see the Midroog transition tables below in this report.

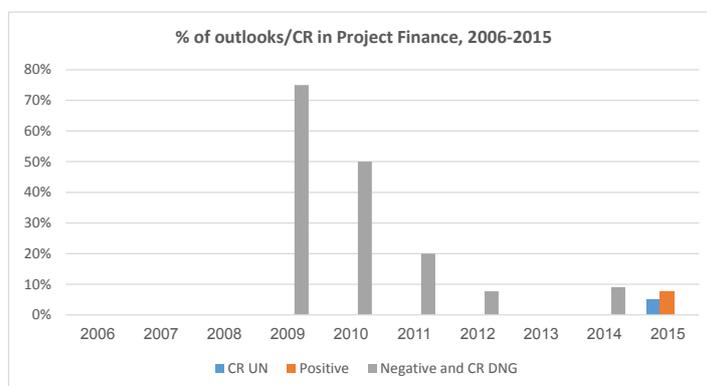


### Distribution of Rating Outlooks and Credit Reviews

A rating outlook is Midroog's assessment of the expected direction of a rating in the medium term. The rating outlook is divided into four categories: positive, stable, negative or developing. A stable rating outlook reflects low expectation of a change in rating in the medium term. A positive, negative or developing outlook reflects a higher probability of a rating change in the medium term.

When a rating is placed under Credit Review (CR), the possibility that the rating will change in the short term is undergoing examination. The CR may be placed on review for upgrade, a downgrade or in some cases with direction uncertain. The review may end in an upgrade, a downgrade or confirmation of the rating. Ratings under CR are sometimes referred to as being on a "Watch List".

The following shows the rate of credits placed on CR with negative or uncertain implications as well as the rate of credits with positive or negative outlook in 2006-2015. The data are for the end of each of the years.



The chart on the above shows that from 2006 to 2008, no project finance credits were placed under CR. In 2009, the rate of credits put under CR was relatively high. Note that total project finance credits that year was relatively low, and therefore, a small number of credits put under CR (three ratings) reflects a relatively high proportion of total ratings. As of year-end 2015, one credit rating had been given a positive outlook and two were in CR with direction uncertain. The ratings of all the other ratings (three) transferred to CR with negative implications as of year-end-2014 had been downgraded as of year-end 2015.

### Transition Tables

Midroog collects information on rating changes between the years 2004 to 2015, based on the database it built up over its years of activity. Each credit in the database is listed according to the number of years in which it was rated. For instance, a credit rated from 2004 to 2015 would be counted 11 times in the database. For each calendar year, the database includes the credit's last rating. If the rating changed a number of times during a single year, the database will have only the last observation, representing the cross-section of the end of the calendar year. In the segment of project finance, observations began in 2006.

The total number of observations in all the rating groups in the segment of project finance at the relevant cross-section points (year-ends 2006 to 2014) is about 89. Adding rating withdrawals and the ratings at year-end 2015, the total number of observations serving in the calculation of the data (including rating withdrawals) at the end of the years 2006-2015 was about 143.

To illustrate the point, the meaning of the data in the aggregated transition table is that the ratings of about 86% of the credits rated A1.ii remained unchanged in the range of a year, and the ratings of about 14% were withdrawn for whatever reason. The equation for calculating the rate of transitions is shown in Appendix 1 to this report. The table further shows that the project finance ratings demonstrate stability in the years under review. In this context, note that the number of ratings in this segment has grown in the last two years, and therefore, the table is based on a very limited number of observations and rating years.



### **The Withdrawn (WR) Column**

The WR column represents the issuers for which monitoring terminated after their rating. The main circumstances for monitoring termination are: complete repayment of the entire rated bond series, a credit/insolvency arrangement by the issuer, insufficiency/deficiency of information rendering efficient assessment of creditworthiness impossible, or a request by the issuer to stop rating its liabilities.

### **The Default Column**

Like the annual estimate of transition rates, the Default column represents the proportion of credits that defaulted during the relevant estimate period, out of all credits with the given rating grade at the end of the previous calendar year, not necessarily relative to the last existing rating before the default. In the years under review, there were no defaults in the segment of project finance. In our opinion, rating transitions (including to a state of default) relative to the cross-section at a uniform time (the end of a given period) more clearly reflects the default rate in a given rating group at that time.



## Transition Tables for Project Finance, 2004-2015

Annual Aggregated Transition Table, 2004-2015

	Aaa.il	Aa1.il	Aa2.il	Aa3.il	A1.il	A2.il	A3.il	Baa1.il	Baa2.il	Baa3.il	Ba1.il	Ba2.il	Ba3.il	B1.il	B2.il	B3.il	Caa1.il	Caa2.il	Caa3.il	Ca.il	C.il	WR	Default
Aaa.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2.il	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa3.il	0%	0%	0%	98%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A1.il	0%	0%	0%	0%	86%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	0%
A2.il	0%	0%	0%	0%	0%	80%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A3.il	0%	0%	0%	0%	0%	9%	91%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa1.il	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa2.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa3.il	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba1.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba2.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba3.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B1.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B2.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B3.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Caa1.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Caa2.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Caa3.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ca.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
C.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Annual Transition Table, 2015

	Aaa.il	Aa1.il	Aa2.il	Aa3.il	A1.il	A2.il	A3.il	Baa1.il	Baa2.il	Baa3.il	Ba1.il	Ba2.il	Ba3.il	B1.il	B2.il	B3.il	Caa1.il	Caa2.il	Caa3.il	Ca.il	C.il	WR	Default
Aaa.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa1.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa2.il	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Aa3.il	0%	0%	0%	93%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A1.il	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A2.il	0%	0%	0%	0%	0%	60%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A3.il	0%	0%	0%	0%	0%	33%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa1.il	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa2.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Baa3.il	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba1.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba2.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ba3.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B1.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B2.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B3.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Caa1.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Caa2.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Caa3.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ca.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
C.il	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

## Related Reports

For [summaries of ratings performance for the years 2009-2014](#), see Midroog's website.

For the [Midroog Rating Scales and Definitions](#), see Midroog's website.

## Appendix 1 – Methodology for calculating transition tables

---

Midroog groups series in rating groups according to their last rating and the relevant time period (T)<sup>3</sup>. The marginal migration rate is the probability that a series that was not "impaired" at a certain rating level up to the start of the period T, will move to another rating level (up or down) by the end of that period. The cumulative rate of transitions is the probability of migration between rating levels from the time the groups were formed until the end of the period T. Mathematically, the marginal transitions rate of a rating group created at point in time y and with a rating of z for the period of time T is defined as the proportion between the number of series x(t) that migrated from a certain rating group to another during the period of time T divided by the total number of series in that rating group at the start of the period of time n(t). Thus:

$$\text{Marginal migration rate from } z(t) = \frac{Xy(t)}{ny(t)}$$

---

<sup>3</sup> The relevant period of time is a year, as set forth in this document.

## Appendix 2 – Calculating the accuracy measure

---

### Average Position (AP)

The position of a rating (that did or did not experience default) in a ratings group<sup>4</sup> is the same as the rate of ratings in the ratings group with a higher rating than itself, plus half the area of the rating category in which it is located.

For example, if 5% of the ratings were Aaa.il, 6% were Aa1.il and 7% were Aa2.il, then:

1. The position of the Aaa.il rating would be  $5\%/2=2.5\%$ .
2. The position of the Aa1.il rating would be  $5\%+(6\%/2)=8\%$ .
3. The position of the Aa2.il rating would be  $5\%+6\%+(7\%/2)=14.5\%$ .

The AP is the calculation of the average positions of the ratings that experienced default/impaired credit at a given point in time before the default/impaired credit (12 months before the default date or impairment of the credit, as applies). This measure reflects the ordinal power of the rating.

A strong rating system would achieve AP approaching 100%, which would mean the issuers that defaulted had all been rated in the lowest percentile of the ratings distribution at least one year before the default date, which would attest to a perfect correlation between the rating and the default probability. A random rating system would produce AP of around 50%, while a rating system with a strong negative correlation to defaults would produce AP approaching 0%. Note that it is impossible to achieve AP of 100%, or 0%, because of the part (their area in the distribution) of defaults in the distribution, which requires the AP to be adjusted for them. For example, let us assume that D represents the rate of ratings that experienced default in the distribution.

- The maximal possible AP is  $100\%-D/2$ , which would result if all the ratings that experienced default had been rated at the same rating, and all the ratings that did not experience default had been rated above that rating.
- Similarly, the minimal possible AP is  $D/2$ , which would result if all the ratings that experienced default had been rated at the same rating, which is higher than all the remaining ratings, which did not experience default.

In order to adjust the AP, we define adjusted AP\* (above and hereinafter: the "**accuracy measure**" or "**Average Position-AP**"), as follows:

$$AP^* = (AP - 50\%) / (100\% - D) + 50\%$$

---

<sup>4</sup> According to the definition of the rating for the purpose of the calculation: issuer, bond series, and so forth.



This adjustment enables AP\* to receive values of 0% or 100%.

We also note that the information in a positive/negative outlook and in credit review with positive/negative implications can be incorporated, creating an AP measure adjusted accordingly. Note that neither the AP measure, nor any other single measure, can by itself reveal the degree of accuracy inherent in different rating systems at a certain cross-section point. Also, the small number of default and/or observations in a certain rating group may skew the results.



**Copyright © All rights reserved to Midroog Ltd. (hereinafter: "Midroog").**

This document, including this paragraph, is copyrighted by Midroog, and are protected by copyright and by intellectual property law. This document may not be copied, scanned or photocopied, amended, distributed, duplicated, or displayed for any purpose whatsoever, commercial or otherwise, without advance written consent from Midroog.

Caveat regarding the limitations of a rating and the risks of relying on a rating, and caveats and reservations in respect to the activity of Midroog Ltd. and the information appearing on its website

Ratings and/or publications by Midroog are subjective opinions about future relative credit risks of entities relative to their credit obligations, debts and/or debt-like financial instruments that apply on the date of their publication, and as long as Midroog has not changed the rating or has withdrawn from it. Midroog's publications may contain assessments based on quantitative models of credit risks, as well as related opinions that served it in the rating process. Ratings and publications by Midroog do not constitute a statement about the accuracy of the facts at the time of the publication or in general. Midroog makes use of rating scales to issue relative prognoses of credit risks and/or entities risks and/or the risks of financial assets according to definitions detailed in the scale itself. The choice of a symbol to reflect credit risk reflects solely a relative assessment of that risk. Midroog defines credit risk as the risk that an entity may fail to meet its contractual financial obligations on schedule and estimated financial loss given default. Midroog's ratings do not address any other risk, such as risks relating to liquidity, market value, change in interest rates, and fluctuation in prices or any other element that influences the capital market.

The ratings and/or publications issued by Midroog do not constitute a recommendation to buy, hold, and/or sell bonds and/or other financial instruments and/or make any other investment and/or forgo any of these actions.

Nor do the ratings and/or publications issued by Midroog constitute investment advice or financial advice, nor do they address the appropriateness of any given investment for any specific investor, or constitute a recommendation for investment of any type whatsoever relying on the rating. Midroog issues ratings on the assumption that anybody making use of the information therein and of the ratings will exercise due caution and conduct the appropriate tests required himself and/or through authorized professionals, in order to personally assess the merit of any investment in a financial asset that he is thinking of buying, holding or selling. Every investor should obtain professional advice in respect to his investments, to the applicable law, and/or to any other professional issue. Any rating or other opinion that Midroog issues should be considered as just one component in any investment decision by the user of information contained in this document or by anybody on his behalf, and accordingly, any user of information contained in Midroog ratings and/or publications and/or in this document must study and reach an assessment of the merit of investment on his behalf regarding any issuer, guarantor, bond or other financial instrument he intends to hold, buy or sell. "Investor" – an investor in a financial asset that has been rated, or in a financial asset of a rated corporation.

All the information contained in Midroog ratings and/or publications, and on which it relied (hereinafter: "the Information") was delivered to Midroog by sources that it considers credible, *inter alia* the rated entity. Midroog is not responsible for the accuracy of the Information and presents it as provided by the sources. Midroog exercises all reasonable means, to the best of its understanding, to assure that the Information is of quality and of adequate extent and that it originates from sources Midroog considers to be credible, including when relying on information received from independent third parties, if and when appropriate. However, Midroog does not carry out audits and cannot therefore verify or certify the Information.

General reviews that Midroog publishes are not intended for use in assessing investments of any kind, but to provide general information and/or data in Midroog's possession, under the limitations set forth above in respect to the Information that served in their preparation. The provisions of these reviews do not constitute part of any methodology by which Midroog works. Midroog may deviate from anything said in a general review and change its position regarding its provisions at any time. Nothing said in any general review shall be viewed, treated or relied on as an opinion or advice in any way. A general review does not constitute part of Midroog's professional



methodology. It reflects the personal opinion of the author of the document, and does not necessarily reflect Midroog's opinion.

Subject to the Law, Midroog, its directors, its officers, its employees and/or anybody on its behalf involved in the rating shall not be held responsible under law, for any damage and/or loss, financial or other, direct, indirect, special, consequential, associated or related, incurred in any way or in connection with the Information or a rating or a rating process, including not issuing a rating, including if they were advised in advance of the possibility of damage or a loss as said above, including but not confined to (a) any loss of profit in present or future, including the loss of other investments opportunities; (b) any loss or damage caused consequential to holding, acquisition and/or selling of a financial instrument, whether it is a subject of a rating issued by Midroog or not; (c) any loss or damage caused consequential to the relevant financial asset, that was caused, *inter alia* and not exclusively, as a result of or in respect to negligence (except for fraud, a malicious action or any other action for which the law does not permit exemption from responsibility) by directors, officers, employees and/or anybody acting on Midroog's behalf, whether by action or omission.

Midroog hereby declares that most of the issuers of financial assets that it rates, or entities for whose issue a rating was conducted, undertook to pay Midroog for the rating prior to the rating process. Midroog maintains policy and procedures in respect to the independence of the rating and the rating processes.

Midroog is a subsidiary of Moody's (hereinafter: "Moody's"), which owns 51% of Midroog's shares. However, Midroog's rating processes are independent and separate from Moody's and are not subject to approval by Moody's. Midroog has its own policies and procedures and its rating committee is independent in its discretion and decisions.

A rating issued by Midroog may change as a result of changes in the information on which it was based and/or as a result of new information and/or for any other reason. Updates and/or changes in ratings are presented on Midroog's website at [www.midroog.co.il](http://www.midroog.co.il), which also has additional information on Midroog's Policies and/or the operation of its rating committee.