



**BANQUE DE FRANCE  
RATINGS**

**2017 PERFORMANCE  
ASSESSMENT**



**May 2018**



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For any questions relating to this document, please contact:  
[fiben@banque-france.fr](mailto:fiben@banque-france.fr)



# FOREWORD

This document provides a series of indicators used by the Banque de France to monitor the performance of its rating system.

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The aim of a rating system is to classify companies according to their probability of default over a given period (materialisation of credit risk).

In deciding which rating to award, financial analysts base their assessment on all relevant available information. There is also a predictive aspect to their appraisal in that it takes into account the outlook for the medium-term horizon (the benchmark horizon for the Banque de France is three years). This guarantees a degree of stability to the assessment – at least in the case of the highest ratings. In addition, the analysts need to be quick to react in their assessment, and incorporate any significant new elements as soon as they come to their attention.

The measurement of a rating system's performance must meet three objectives:

- It must enable an outside observer to form an opinion on the system's ability to classify companies appropriately according to their level of credit risk.
- It must provide details of how the system achieves a balance between stability and responsiveness.
- The value of the indicators must be interpreted in relation to the system's parameters, such as the definition of "default" and the size of the portfolio of companies covered by the system.

# 1. DETAILS ON THE STATISTICAL METHODOLOGY USED

The Banque de France rating system is an assessment of a company's ability to meet its financial commitments over a three-year horizon. It is a measure of a company's credit risk, reflecting a judgement as to the degree of risk incurred by its lenders.

Ratings are assigned by analysts located throughout France, in compliance with the professional and ethical standards set out in the "Banque de France ratings analysis code of conduct".

Each year, more than 260,000 companies meeting the qualifying criteria (i.e. with turnover in excess of EUR 750,000, excluding tax) undergo a risk analysis, based on the following elements:


- an examination of the most recent company financial statements (no more than 20 months old);
- qualitative information, which, since 2015, includes a section on Corporate Social Responsibility (CSR).

The statistics presented in this document concern companies within this population, which have been assigned one of the following ratings: 3++, 3+, 3, 4+, 4, 5+, 5, 6, 7, 8, 9 or P.

A credit rating of 9 – the lowest rating before the launch of legal proceedings (P rating) – indicates that the company's ability to meet its financial commitments over a three-year horizon is seriously at risk. A rating of 9 is regarded as a default rating, and is assigned when a company's total payment incidents over the six preceding months exceed 10% of the total amount of its purchases (excluding VAT).<sup>1</sup>

The statistics provided in this document do not cover the rating 0, which is assigned to companies whose financial statements have not been examined for the period under review.

The statistics provided are based on the concepts of failure and default, which are defined as follows:

Failure	Default	
Initiation of legal proceedings (restructuring or liquidation).	<ul style="list-style-type: none"> <li>- Failure,</li> <li>- Or attribution of a credit rating of 9 due to the reporting of significant payment incidents by one or more credit institutions.</li> </ul>	 <p><i>This differs from the notion of "Basel default", on which data have only been collected since 2012.</i></p>

<sup>1</sup> If the amount of purchases is not known, the ratio is calculated as a percentage of total turnover excluding tax. In this case, a rating of 9 is assigned if the ratio exceeds 5%.

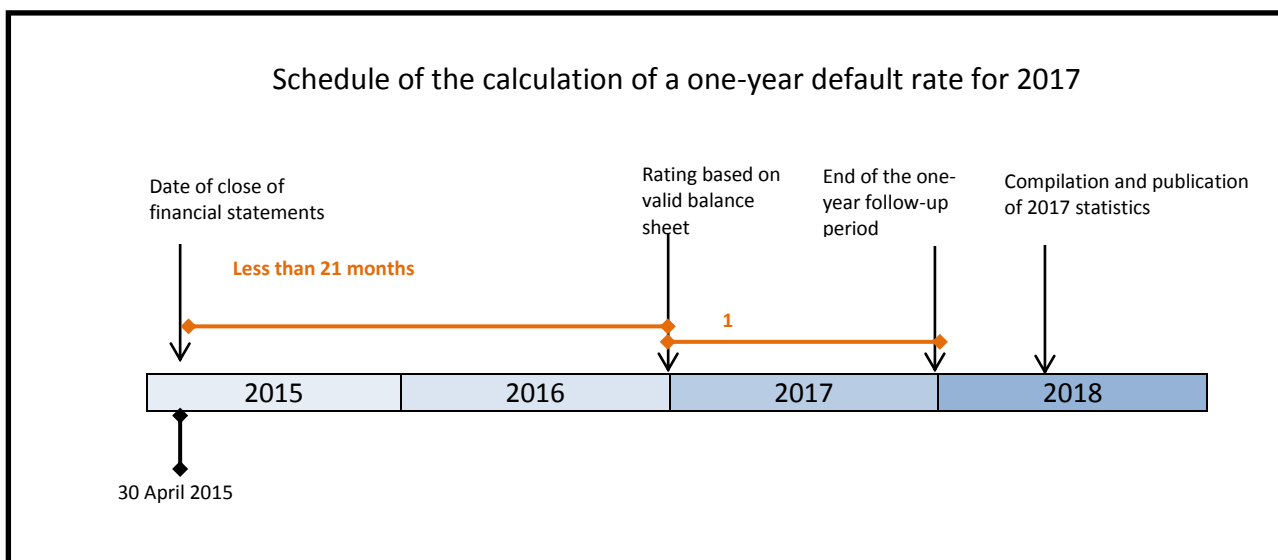
Default and failure rates are classified as "fixed" as they are calculated from 1 January of the reference year.<sup>2</sup>

Thus, in 2018, three fixed rates have been calculated: a one-year rate, a two-year rate and a three-year rate:

		One-year default rate for 2017	2018
	Two-year default rate for 2016		2018
Three-year default rate for 2015			2018

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This document provides the most recent statistics, i.e. those available at the start of 2018. As errors or changes can occur when payment incidents are declared (e.g. revisions to or cancellations of incidents, for example), statistics on failures and defaults are published a few months after the end of the period under review to ensure that series are stable (including for the most recent data).



<sup>2</sup> As of the publication of the 2016 statistics, default and failure rates are calculated using the "fixed rate" method and not the "rolling rate" method. All rates for previous years have been recalculated using this method (see Section 2.2) to ensure comparability between different years.



## 2. STATISTICS FOR 2018

### 2.1. Discriminative and predictive capacity of the rating system

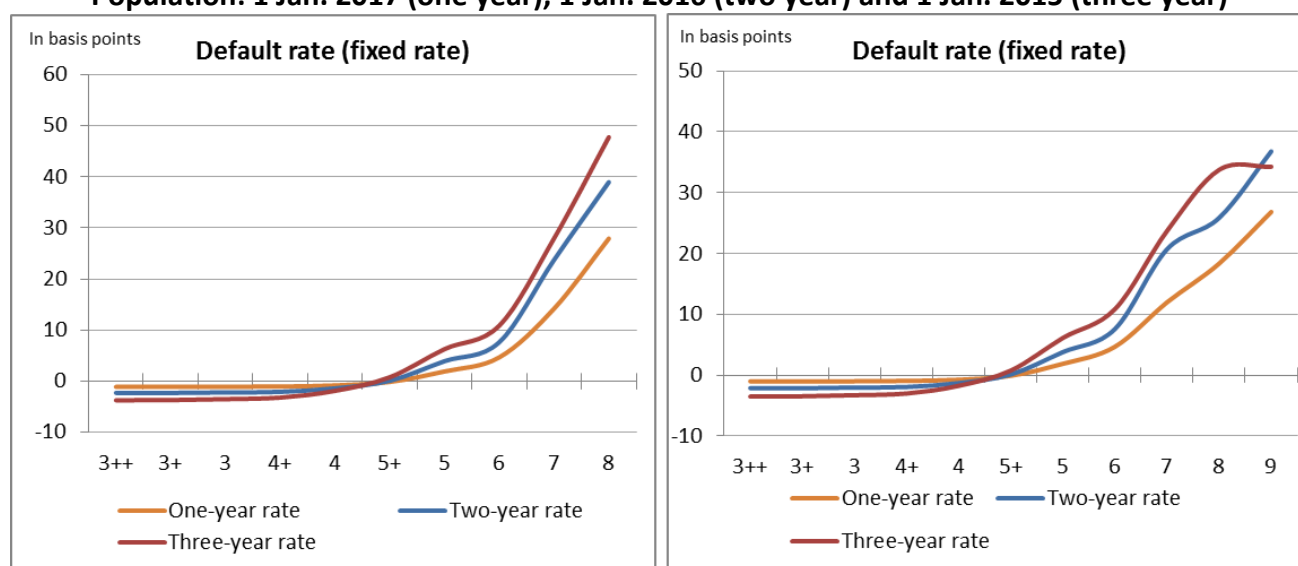
An analysis of the data shows a **satisfactory progression in default and failure rates across the rating scale and over the three time horizons taken into consideration.**

Overall, the default rate for rated companies amounts to 1.10% over a one-year horizon, 2.32% over a two-year horizon and 3.77% over a three-year horizon.

The differences between the fixed default and failure rates for each rating category clearly demonstrate the ability of the Banque de France system to discriminate between companies: for example, the average fixed one-year default rate for companies rated 4 is 0.28%, which differs significantly from the rates for adjacent ratings in the scale (0.07% for 4+ and 0.97% for 5+ – see Table 1).<sup>3</sup> A similar trend can be seen in fixed two-year and three-year default rates (see Tables 2 and 3, respectively).

A graph of the deviation of rates versus the average (calculated for the entire population) also shows that the discriminative capacity of the model increases as we move down the rating scale (i.e. from 3++ to 9), regardless of the time horizon taken into account (see Chart 1).

**Chart 1: Deviation versus the average for default and failure rates, calculated for each rating  
Population: 1 Jan. 2017 (one year), 1 Jan. 2016 (two year) and 1 Jan. 2015 (three year)**



<sup>3</sup> The size of the divergences between credit ratings is statistically verified using Khi 2 tests, carried out on adjacent pairs of ratings.

## 2.1.1. Fixed one-year rates

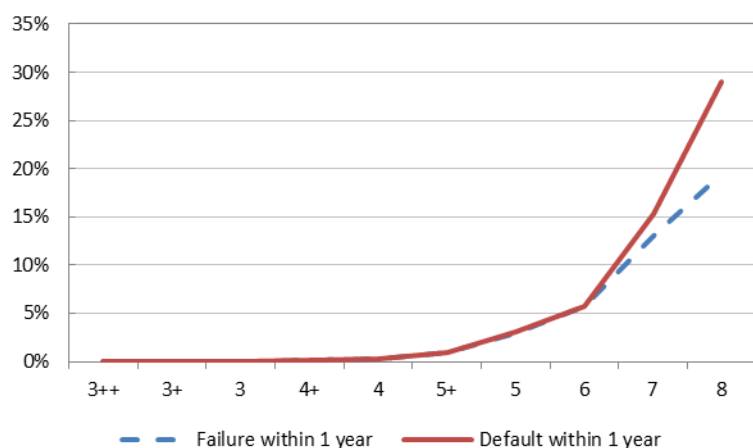
**Table 1: Fixed one-year rates – failure and default**  
Population: 1 Jan. 2017

Credit rating	Number of companies	Failure within 1 year		Default within 1 year	
		Number	Rate	Number	Rate
3++	9,718	0	0.00%	0	0.00%
3+	18,009	1	0.01%	1	0.01%
3	29,170	5	0.02%	5	0.02%
4+	38,471	28	0.07%	28	0.07%
4	59,743	156	0.26%	165	0.28%
5+	61,874	572	0.92%	599	0.97%
5	23,209	669	2.88%	700	3.02%
6	13,321	759	5.70%	769	5.77%
7	1,576	205	13.01%	241	15.29%
8	1,027	199	19.38%	298	29.02%
9	122	34	27.87%		
<b>Total</b>	<b>256,240</b>	<b>2,628</b>	<b>1.03%</b>	<b>2,806</b>	<b>1.10%</b>

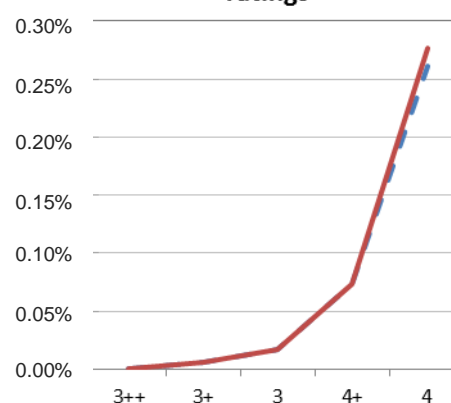
Note: a rating of 9 indicates default.

**Chart 2: Fixed one-year rates and focus on the highest ratings**  
Population: 1 Jan. 2017

**Default and failure rates by credit rating**



**Focus on the highest ratings**



## 2.1.2. Fixed two-year rates

**Table 2: Fixed two-year rates – failure and default**  
Population: 1 Jan. 2016

Credit rating	Number of companies	Failure within 2 years		Default within 2 years	
		Number	Rate	Number	Rate
3++	10,377	5	0.05%	5	0.05%
3+	18,356	6	0.03%	7	0.04%
3	27,244	38	0.14%	38	0.14%
4+	35,973	87	0.24%	88	0.24%
4	62,869	553	0.88%	590	0.94%
5+	57,275	1,322	2.31%	1,388	2.42%
5	24,380	1,458	5.98%	1,524	6.25%
6	13,078	1,280	9.79%	1,303	9.96%
7	1,642	376	22.90%	428	26.07%
8	1,187	333	28.05%	490	41.28%
9	177	69	38.98%		
<b>Total</b>	<b>252,558</b>	<b>5,527</b>	<b>2.19%</b>	<b>5,861</b>	<b>2.32%</b>

## 2.1.3. Fixed three-year rates

**Table 3: Fixed three-year rates – failure and default**  
Population: 1 Jan. 2015

Credit rating	Number of companies	Failure within 3 years		Default within 3 years	
		Number	Rate	Number	Rate
3++	9,838	5	0.05%	5	0.05%
3+	19,005	18	0.09%	18	0.09%
3	27,413	74	0.27%	74	0.27%
4+	35,019	192	0.55%	199	0.57%
4	63,755	1,156	1.81%	1,216	1.91%
5+	54,648	2,365	4.33%	2,487	4.55%
5	23,890	2,315	9.69%	2,405	10.07%
6	11,228	1,621	14.44%	1,647	14.67%
7	1,935	528	27.29%	614	31.73%
8	1,347	503	37.34%	694	51.52%
9	222	84	37.84%		
<b>Total</b>	<b>248,300</b>	<b>8,861</b>	<b>3.57%</b>	<b>9,359</b>	<b>3.77%</b>



## 2.2. Robustness of the system

An examination of historical ratings data shows the robustness of the system over time. Moreover, historical data on the one-year and three-year default and failure rates reveal a number of significant trends, notably an almost continuous decline in these rates over the past decade for those ratings classified as eligible for refinancing.

To assess the robustness and consistency of the system over time, the table below shows data based on the closing accounts for 2007 to 2016. On average, and for each of the financial years presented, there is a satisfactory progression in the default and failure rates as we move along the ratings scale.

Long-term data on one-year rates show that, for those companies assessed after the 2008-09 financial crisis, one-year default and failure rates have eased since 2010, both for individual credit ratings and on an aggregate basis (see Tables 4 and 5). The (extremely brief) upturn in 2013 in average rates calculated for all credit ratings results from pressure on the poorer ratings (lower than 5). Since 2014, the one-year rates fell to levels below the historical average.

Fixed three-year rates smooth out any cyclical factors affecting the performance of a company (but without necessarily causing it to fail immediately). As a result, overall failure and default rates are more stable over time, and increase as the credit rating declines (see Tables 6 and 7). It should be noted that the 10-year averages for the failure and default rates of ratings 5 and 6 are relatively close,<sup>4</sup> suggesting limited discrimination between companies in the two categories. However, the corrective measures implemented in 2013 helped to improve the differentiation between the 5 and 6 ratings, and as a result there is a more marked divergence between the two for 2013, 2014 and 2015 (10.07% and 14.67% respectively for the three-year default rate in 2015).

**Table 4: One-year failure rate  
(for the population assessed at 1 January each year)**

Failure within 1 year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average 2008-2017
3++	0.02%	0.01%	0.01%	0.01%	0.00%	0.02%	0.00%	0.01%	0.04%	0.00%	0.01%
3+	0.03%	0.07%	0.04%	0.03%	0.03%	0.03%	0.01%	0.02%	0.00%	0.01%	0.03%
3	0.05%	0.14%	0.04%	0.02%	0.05%	0.04%	0.05%	0.03%	0.09%	0.02%	0.05%
4+	0.34%	0.49%	0.29%	0.18%	0.20%	0.16%	0.10%	0.10%	0.07%	0.07%	0.20%
4	0.94%	1.37%	0.94%	0.89%	0.76%	0.72%	0.57%	0.42%	0.35%	0.26%	0.72%
5+	1.39%	2.18%	1.75%	1.59%	1.60%	1.65%	1.47%	1.32%	1.09%	0.92%	1.50%
5	3.66%	5.13%	4.88%	4.25%	4.74%	4.25%	4.16%	4.22%	3.22%	2.88%	4.14%
6	4.55%	6.10%	4.52%	4.48%	4.40%	6.29%	7.04%	6.77%	5.69%	5.70%	5.55%
7					16.39%	15.67%	14.88%	15.20%	13.82%	13.01%	14.83%
8	20.39%	23.18%	21.26%	20.11%	21.08%	23.09%	20.49%	18.74%	18.20%	19.38%	20.59%
9	26.77%	32.30%	28.65%	27.33%	26.51%	27.27%	28.08%	19.52%	25.99%	27.87%	27.03%
<b>TOTAL</b>	<b>1.22%</b>	<b>1.70%</b>	<b>1.42%</b>	<b>1.32%</b>	<b>1.56%</b>	<b>1.72%</b>	<b>1.54%</b>	<b>1.35%</b>	<b>1.15%</b>	<b>1.03%</b>	<b>1.40%</b>

<sup>4</sup> For example, 11.49% and 11.84% in the case of the three-year default rate, see Table 7.

**Table 5: One-year default rate  
(for the population assessed at 1 January each year)**

Default within 1 year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Average 2008-2017
<b>3++</b>	0.02%	0.01%	0.01%	0.01%	0.00%	0.02%	0.00%	0.01%	0.04%	0.00%	0.01%
<b>3+</b>	0.03%	0.07%	0.04%	0.03%	0.04%	0.03%	0.01%	0.02%	0.00%	0.01%	0.03%
<b>3</b>	0.05%	0.14%	0.04%	0.03%	0.05%	0.04%	0.05%	0.04%	0.09%	0.02%	0.05%
<b>4+</b>	0.41%	0.54%	0.30%	0.19%	0.21%	0.16%	0.10%	0.11%	0.07%	0.07%	0.22%
<b>4</b>	1.17%	1.51%	1.07%	0.96%	0.82%	0.77%	0.61%	0.44%	0.37%	0.28%	0.80%
<b>5+</b>	1.74%	2.43%	1.99%	1.80%	1.70%	1.75%	1.55%	1.41%	1.13%	0.97%	1.65%
<b>5</b>	4.32%	5.59%	5.28%	4.64%	4.90%	4.43%	4.35%	4.33%	3.36%	3.02%	4.42%
<b>6</b>	5.16%	6.51%	4.85%	4.72%	4.57%	6.39%	7.19%	6.88%	5.78%	5.77%	5.78%
<b>7</b>					19.77%	18.97%	18.26%	17.56%	16.02%	15.29%	17.65%
<b>8</b>	45.70%	38.03%	38.47%	34.49%	34.79%	35.81%	32.42%	30.65%	30.08%	29.02%	34.94%
<b>TOTAL</b>	<b>1.47%</b>	<b>1.83%</b>	<b>1.58%</b>	<b>1.46%</b>	<b>1.71%</b>	<b>1.85%</b>	<b>1.67%</b>	<b>1.46%</b>	<b>1.24%</b>	<b>1.10%</b>	<b>1.54%</b>

**Table 6: Three-year failure rate  
(for the population assessed at 1 January each year)**

Failure within 3 years	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 2006-2015
<b>3++</b>	0.19%	0.20%	0.14%	0.20%	0.11%	0.07%	0.06%	0.07%	0.07%	0.05%	0.12%
<b>3+</b>	0.32%	0.35%	0.35%	0.32%	0.28%	0.27%	0.20%	0.17%	0.15%	0.09%	0.25%
<b>3</b>	0.51%	0.60%	0.58%	0.64%	0.52%	0.50%	0.38%	0.33%	0.35%	0.27%	0.47%
<b>4+</b>	1.78%	1.85%	1.98%	2.09%	1.67%	1.37%	1.21%	0.88%	0.62%	0.55%	1.40%
<b>4</b>	3.24%	3.71%	4.05%	4.58%	3.96%	3.80%	3.41%	3.12%	2.45%	1.81%	3.41%
<b>5+</b>	4.57%	4.79%	5.72%	6.12%	5.60%	5.57%	5.54%	5.42%	4.75%	4.33%	5.24%
<b>5</b>	8.57%	9.78%	10.83%	11.95%	11.77%	11.36%	11.97%	10.56%	10.32%	9.69%	10.68%
<b>6</b>	9.86%	10.34%	11.79%	11.95%	10.47%	10.84%	11.42%	13.97%	15.18%	14.44%	12.03%
<b>7</b>							33.50%	32.13%	32.54%	27.29%	31.37%
<b>8</b>	36.30%	36.90%	41.58%	43.49%	39.41%	42.69%	40.84%	41.61%	36.98%	37.34%	39.71%
<b>9</b>	40.94%	44.01%	50.19%	51.37%	44.01%	43.73%	49.33%	50.16%	48.39%	37.84%	46.00%
<b>TOTAL</b>	<b>3.48%</b>	<b>3.78%</b>	<b>4.19%</b>	<b>4.46%</b>	<b>4.18%</b>	<b>4.17%</b>	<b>4.61%</b>	<b>4.67%</b>	<b>4.22%</b>	<b>3.57%</b>	<b>4.13%</b>

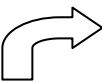
**Table 7: Three-year default rate  
(for the population assessed at 1 January each year)**

<b>Default within 3 years</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>Average 2006-2015</b>
<b>3++</b>	0.21%	0.21%	0.17%	0.22%	0.11%	0.07%	0.07%	0.08%	0.07%	0.05%	0.15%
<b>3+</b>	0.37%	0.38%	0.37%	0.34%	0.30%	0.28%	0.20%	0.19%	0.16%	0.09%	0.32%
<b>3</b>	0.59%	0.63%	0.62%	0.70%	0.54%	0.51%	0.41%	0.34%	0.35%	0.27%	0.56%
<b>4+</b>	1.99%	2.03%	2.18%	2.23%	1.77%	1.48%	1.29%	0.91%	0.65%	0.57%	1.78%
<b>4</b>	3.73%	4.23%	4.46%	5.01%	4.25%	4.05%	3.61%	3.28%	2.57%	1.91%	4.04%
<b>5+</b>	5.34%	5.40%	6.35%	6.74%	6.17%	6.11%	5.88%	5.70%	5.03%	4.55%	5.89%
<b>5</b>	9.91%	10.88%	11.88%	12.86%	12.58%	12.13%	12.44%	10.96%	10.73%	10.07%	11.49%
<b>6</b>	10.67%	11.37%	12.62%	12.69%	10.98%	11.45%	11.66%	14.24%	15.50%	14.67%	11.84%
<b>7</b>							39.15%	37.16%	37.21%	31.73%	38.15%
<b>8</b>	59.98%	57.50%	63.15%	58.43%	56.54%	58.29%	55.45%	55.21%	50.84%	51.52%	57.81%
<b>TOTAL</b>	<b>3.95%</b>	<b>4.15%</b>	<b>4.55%</b>	<b>4.76%</b>	<b>4.49%</b>	<b>4.47%</b>	<b>4.88%</b>	<b>4.91%</b>	<b>4.45%</b>	<b>3.77%</b>	<b>4.47%</b>

## 2.3. Stability within the risk classes (transition matrices)

A transition matrix shows the movement of companies from one rating class to another between two dates (in this case between 1 January and 31 December of each year).<sup>5</sup> By examining the matrix, it is thus possible to measure the scale of the shifts between ratings over a given period (both in terms of the number of companies switching to a different rating and the number of notches they moved up or down), as well as the stability of the individual ratings. The main diagonal (shown in orange) shows companies that stayed in the same rating class, while the rest of the matrix (in pink) shows companies that changed rating (see Table 8).

**Table 8: One-year transition matrix for companies rated at 1 January 2017**



		At 31 December 2017											Incoming 3++ to P	Outgoing	Total	
		3++	3+	3	4+	4	5+	5	6	7	8	9				P
At 1 January 2017	3++	83.96%	8.61%	4.04%	1.27%	0.63%	1.00%	0.19%	0.29%	0.00%	0.00%	0.00%	0.00%	9,379	339	9,718
	3+	10.88%	69.16%	12.02%	4.41%	1.96%	1.13%	0.17%	0.27%	0.01%	0.00%	0.00%	0.00%	17,377	632	18,009
	3	1.46%	18.24%	60.43%	12.80%	4.94%	1.66%	0.30%	0.14%	0.01%	0.00%	0.00%	0.00%	27,929	1,241	29,170
	4+	0.21%	1.81%	22.47%	53.26%	17.50%	3.93%	0.62%	0.13%	0.03%	0.02%	0.00%	0.02%	36,241	2,230	38,471
	4	0.08%	0.23%	3.01%	20.86%	58.74%	14.05%	2.33%	0.35%	0.18%	0.09%	0.00%	0.07%	54,768	4,975	59,743
	5+	0.14%	0.20%	0.46%	2.14%	17.47%	66.20%	10.13%	2.10%	0.63%	0.25%	0.02%	0.27%	52,753	9,121	61,874
	5	0.11%	0.11%	0.27%	0.55%	6.29%	31.72%	48.56%	9.68%	1.27%	0.54%	0.06%	0.83%	19,162	4,047	23,209
	6	0.17%	0.21%	0.38%	0.67%	1.68%	13.42%	17.03%	63.16%	1.46%	0.56%	0.06%	1.19%	10,416	2,905	13,321
	7	0.00%	0.00%	0.08%	0.00%	2.54%	22.50%	23.60%	17.51%	17.43%	10.32%	1.02%	4.99%	1,182	394	1,576
	8	0.00%	0.00%	0.00%	0.00%	1.16%	13.58%	18.21%	10.69%	17.05%	26.73%	4.05%	8.53%	692	335	1,027
	9	0.00%	0.00%	0.00%	0.00%	1.22%	2.44%	8.54%	9.76%	18.29%	23.17%	21.95%	14.63%	82	40	122
	P	0.00%	0.00%	0.00%	0.00%	0.00%	1.92%	1.10%	73.35%	1.65%	0.27%	0.00%	21.70%	364	552	916
	Total	4.52%	8.2%	12.79%	15.84%	22.11%	22.85%	8.02%	4.54%	0.52%	0.29%	0.04%	0.30%	230,345	26,811	257,156

- The ratings taken into account at the beginning of the period (in this case 1 January 2017) are those attributed on the basis of company financial statements (which explains the absence of 0 ratings). This may not always be the case at the end of the period.
- The "Outgoing" column shows companies that were excluded from the sample over the period, i.e. those rated 3++ to P on 1 January, based on their financial statements, then attributed a rating of 0 on 31 December, meaning that the Banque de France no longer had any sufficiently recent financial assessments to be able to carry out a meaningful analysis, and had not received any unfavourable information on the company.
- The "Total" row shows the breakdown of companies by credit rating at the end of the year.
- The orange diagonal shows, for each rating, the share of companies whose rating remained unchanged between the beginning and the end of the year. In total, 61% of companies had the same rating at 31 December 2017 as at 1 January 2017.
- The tridiagonal shows companies whose rating changed by a maximum of one notch between the beginning and end of 2017. For example, a company rated 3 at 1 January and then 3+, 3 or 4+ at 31 December will appear in the tridiagonal.

<sup>5</sup> The method used to compile the matrix is described in greater detail in Appendix 2.

	3+	3	4+
3	18.24%	60.43%	12.80%

Changes to ratings are generally minimal. In 91.8% of cases, the rating at 31 December 2017 was either the same as at 1 January 2017 or only one notch higher or lower (i.e. companies shown in the tridiagonal, see Table 9). This stability in the ratings can also be seen over a five-year period (main diagonals and tridiagonals).

**Table 9: Comparison of rating changes between 2012 and 2017**

	2012	2013	2014	2015	2016	2017
Diagonal	58.30%	61.30%	62.00%	58.94%	59.67%	60.58%
Tridiagonal	88.00%	90.50%	91.40%	90.77%	91.41%	91.83%
Upgrade rate <sup>6</sup>	19.60%	16.30%	18.20%	20.36%	21.22%	22.92%
Downgrade rate <sup>7</sup>	22.10%	22.40%	19.80%	20.70%	19.12%	16.50%

Only a very small proportion of companies in the higher rating categories (3++, 3+ and 3) were downgraded within a year to a rating lower than 4<sup>8</sup> (1.8% at 31 December 2017).

Similarly, at end-2016, 1.6% of companies in the lower rating categories (less than or equal to 5+) had been upgraded to a rating of over 4 over the year.

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<sup>6</sup> Expressed as the ratio of companies whose rating was upgraded over the year to the total number of companies.

<sup>7</sup> Expressed as the ratio of companies whose rating was downgraded over the year to the total number of companies.

<sup>8</sup> A "rating lower than 4" refers to the ratings 5+, 5, 6, 7, 8, 9 and P.

# APPENDICES

**Appendix 1** Definition and method of calculation of failure and default

**Appendix 2** Method used to create rating transition matrices

### I. Definition of failure and default

The Banque de France uses two definitions, corresponding to a more or less broad definition of default:

- A company is said to be "in failure" if legal proceedings have been initiated against it (restructuring or liquidation): in this case, the company is attributed a rating of P. Even if the company is subsequently upgraded, for example after implementing a business continuity plan, it will still continue to be classified as "in failure" for statistical calculations.
- A company is said to be "in default" if it meets the above criteria (i.e. legal proceedings have been initiated) or has been attributed a rating of 9 over the period due to the reporting of significant payment incidents by one or more credit institutions. This definition of default differs from the notion of "Basel default", on which data have been collected since 2012. The period taken into consideration in determining the rating is the six previous months. If, after receiving a rating of 9, a company once again resumes regular payments on its debts, it may be upgraded from the "default" category and assigned a higher rating, subject to a comprehensive assessment of its position by an analyst. For the purpose of statistical calculations, however, the company will continue to be classified as "in default".

By definition, the default rate calculated for a given population is always greater than or equal to the failure rate, and the default rate for companies initially rated 9 is 100%.

The notion of failure is based on an objective appraisal of a company's exposure to risk,<sup>9</sup> which is made widely available almost immediately after the declaration has been made.

The notion of default, which is broader, is based on data from the national database of trade bill payment incidents (CIPE – *fichier Central des Incidents de Paiement sur Effets*), which is managed by the Banque de France under Regulation No. 86-08 of the Banking Regulation Committee, dated 27 February 1986. The CIPE contains details of all trade bill payment incidents<sup>10</sup> reported by credit institutions. The seriousness of these incidents will determine the rating attributed: a rating of 7<sup>11</sup> indicates there have been relatively small-scale incidents in the previous six months where the company has found itself unable to pay; 8 indicates that, on the basis of the payment incidents reported over the previous six months, the company's solvency appears to be at risk; and 9 indicates that, on the basis of the payment incidents reported over the previous six months, the company's solvency is seriously compromised.

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<sup>9</sup> It is objective in that it is based entirely on external information that is not open to interpretation by the analyst.

<sup>10</sup> Accepted trade bills and electronic trade bills, promissory notes and electronic promissory notes, accepted bills issued for the collection of receivables giving rise to the mobilisation of unguaranteed commercial credit, tax credits, unaccepted trade bills and electronic trade bills, as well as unaccepted bills issued for the recovery of receivables giving rise to the mobilisation of unguaranteed commercial credit.

<sup>11</sup> Up to 31 December 2010, this rating was only used for companies whose financial statements had not been analysed.

Compared with "failure", using payment incidents to assess a company's financial health provides an earlier and more comprehensive indicator of default. Indeed, the high delinquency rate for companies rated 9, which have experienced major payment incidents and seldom see a return to profitability, justifies classifying this rating as a default. This type of default nonetheless differs from the definition set out in Article 178 of Regulation (EU) No. 575/2013 of the European Parliament and of the Council on prudential requirements for credit institutions and investment firms.<sup>12</sup>

The Banque de France's notion of default is limited to trade bill payments and does not take into account all of a company's outstanding debts. However, given the importance of trade credit as a means of corporate financing, it is particularly useful to take these payment incidents into account when analysing a company's credit risk.

This notion of default also has a number of advantages in terms of its predictive capacity and stability – both of which are important requirements:

- It is sufficiently predictive, in that a default on trade bills often precedes a default on bank loans, which in turn generally precedes a bond default and a "legal" default consisting in the opening of legal proceedings (it is in these two latter stages that a company's difficulties are generally brought to light).
- It is sufficiently stable, in that there is no excessively rapid or high rate of return to the "sound" rating categories.

## **II. Method for quantifying failure and default rates for the different ratings**

The rate<sup>13</sup> of ex-post observations of default is determined using a "fixed" method, which is over a strictly defined time horizon (1, 2 or 3 years) starting from 1 January of the year in question. The rate is then calculated as the ratio between the following:

- the denominator, which comprises all the companies rated by the Banque de France on the basis of their valid financial statements<sup>14</sup> as at 1 January of the year under review;
- the numerator, which comprises all companies which were downgraded to the default category over the period<sup>15</sup> under review (the starting point for the period is 1 January of that year).

The failure rate is calculated using the same method, but in this case the numerator consists of all companies for which legal proceedings were initiated during the period under review.

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<sup>12</sup> Definition applied by the Eurosystem as a performance measure for the rating systems used by central banks with In-House Credit Assessment System (ICAS) status.

<sup>13</sup> Rates are calculated for the entire population of companies monitored by the Banque de France, broken down by rating. Thus, each of the ratings attributed by the Banque de France has its own specific failure and default rates.

<sup>14</sup> Note: ratings are legally valid for a period of 20 months as of the closing date of the financial statements on which they are based. As a result, if the Banque de France receives no further financial statements after these 20 months have expired, the company loses its rating and is no longer taken into account in the default statistics for the subsequent period.

<sup>15</sup> 1, 2 or 3 years, as of 1 January.



## Appendix 2 Method used to create rating transition matrices

The term "transition matrix" refers here to the presentation in table form of changes to company ratings, "based on balance sheet information", between two given dates (in this case 1 January and 31 December of each calendar year). The start date and end date are the same for all companies.

The idea is to provide a "snapshot" at the given dates: events<sup>16</sup> that may have occurred between those two dates are not taken into account. Only the ratings assigned at the start and end of the period are taken into account in the matrix.

### Example

A company rated C5+ at the start of the period (1 January) was downgraded to C8 during the period, then upgraded to D5, which was its rating as at 31 December.

The matrix only takes into account the change from 5+ to 5.

In addition, the Banque de France does not take into account the length of time for which the rating has been in place at the start or end of the period. Thus, no distinction is made between a company whose rating at 1 January was assigned six months previously and a company assigned that rating just two days prior to 1 January.

### Population of companies:

- The companies taken into account at **the beginning of the period** are those awarded a rating on the basis of their financial statements. As a result, only those with the following ratings are included: 3++, 3+, 3, 4+, 4, 5+, 5, 6, 7, 8, 9 or P.
- **At the end of the period**, some companies may no longer be rated on the basis of their financial statements for a variety of reasons.<sup>17</sup> As a result, the following ratings may be included: 3++, 3+, 3, 4+, 4, 5+, 5, 6, 7, 8, 9, P and 0. A credit rating attributed without recent financial statements will always be lower than 4.

The share of companies in each rating category that were no longer rated on the basis of their financial statements as at 31 December 2017 is shown below (in %):

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<sup>16</sup> Including a failure (P rating) or payment default (9 rating).

<sup>17</sup> There are various reasons why a company might no longer be rated on the basis of its financial statements after a year:

- the company has not provided the Banque de France with financial statements for the subsequent year;
- the company no longer meets the minimum turnover requirement to be assessed (i.e. EUR 750,000);
- the company no longer exists;
- other (particularly long financial year, etc.).

Rating at 1 Jan. 2017	3++	3+	3	4+	4	5+	5	6	7	8	9	P	Overall
No recent financial statements as at 31 Dec. 2017	3.49%	3.51%	4.25%	5.80%	8.33%	14.74%	17.44%	21.81%	25.00%	32.62%	32.79%	60.26%	10.43%

Of these companies, the majority of those that had one of the higher ratings as at 1 January 2017 (from 3++ to 4 inclusive) were attributed a rating of 0 at the end of the year. For the others (those with a rating lower than 5+ at 1 January 2017), the breakdown is more evenly distributed across the various risk classes (5+ to 9).

The proportion of companies no longer rated on the basis of their financial statements rises as we move down the rating scale: the lower the rating at the start of the year, the greater the likelihood that a company will not provide financial statements for the following year. The 60.26% share for the P rating is thus attributable to the fact that, at 1 January, the companies concerned were already dealing with the start of legal proceedings such as a restructuring or liquidation and as a result the majority were unable to submit financial statements over the year.

### Sub-total of the matrix

#### Rows

The matrix rows show the breakdown of companies by credit rating (3++, etc.) at the start of the period.

The "Total" row shows the breakdown of companies by credit rating at the end of the period.

#### Columns

The matrix columns show the breakdown of companies by credit rating (or "status") at the end of the period.

The "Incoming 3++ to P" column shows the number of companies with a rating given at the start of the period and a significant rating at the end of the period.

The "Outgoing" column shows the number of companies in each rating category that exited the sample, i.e. whose rating based on their financial statements was no longer significant at the end of the period.

The "Total" column shows the number of companies in each rating category at the start of the period.

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