

## Box 2

**PROBABILITY OF DEFAULT OF SPANISH NON-FINANCIAL CORPORATIONS: RECENT DEVELOPMENTS BY SECTOR AND FIRM SIZE**

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This box analyses recent developments in the probability of default (PD) estimated by Spanish credit institutions for performing and stage 2 loans to non-financial corporations (NFCs), broken down by sector and firm size.<sup>1</sup> It takes information from the Central Credit Register (CCR) on the PDs reported by banks that use the internal ratings-based (IRB) approach to calculate capital requirements. Based on this information, each firm's average PD in each quarter is found as the weighted average of the PDs assigned by each bank, weighted by credit exposure size. In turn, the overall average PD is obtained by weighting the PD calculated for each company by the relative share of their bank debt.<sup>2, 3</sup>

Loan default probabilities have increased slightly in recent quarters. Specifically, the average PD for bank lending to NFCs has risen by 39 basis points (bp) since 2024 Q3 (from 2.14% to 2.53%), but remains 25 bp below the average for 2022 (Chart 1). The increase was more pronounced in 2024 Q4 (31 bp) than in 2025 Q1 (8 bp) and was broad-based across all firm sizes (Chart 2). However, credit quality declined somewhat more markedly among large firms, whose PD has risen by 51 bp since 2024 Q3 to 2.03% (50 bp below the average for NFCs as a whole).

PD developments have been somewhat more uneven across the different economic sectors. In particular, the recent increase in average corporate PD has been mainly driven by the construction and real estate activities sector and the other services sector, where average PDs have increased by 44 bp and 96 bp, respectively, since 2024 Q3. Following these increases, in 2025 Q1 the average PD in construction and real estate activities and in other services stood 37 bp and 32 bp, respectively, above the overall average for NFCs.

Credit risk has also risen slightly in the trade and hospitality sector and in the energy sector, where the PD increased

by 9 bp and 12 bp, respectively, between 2024 Q3 and 2025 Q1. Lastly, the industrial sector has shown a slight improvement, with the average PD decreasing by 9 bp since 2024 Q3.

Developments in average PD do not allow us to determine whether the deterioration observed owes to a widespread increase in risk or whether the increase is concentrated among firms with certain solvency levels. To address this, the firms have been sorted into five risk categories based on their PD, enabling us to assess whether the recent deterioration is concentrated in lower credit quality segments, which could signal an increase in tail risk:

- PD <0.1%: equivalent to credit quality steps (CQS)<sup>4</sup> 1 and 2.
- PD between 0.1% and 0.4%: CQS 3.
- PD between 0.4% and 1%: CQS 4.
- PD between 1% and 1.5%: CQS 5.
- PD >1.5%: CQS 6, 7 and 8.

Chart 3 shows the distribution of bank lending volumes by risk level in 2024 Q3 and 2025 Q1. The slight deterioration observed is mainly attributable to an increase of 3.2 percentage points (pp) in the proportion of credit to firms with a PD greater than 1.5%. Meanwhile, the share of credit in the intermediate risk categories (CQS 4 and 5, with a PD of between 0.4% and 1.5%) has decreased by 4.4 pp. However, these figures do not evidence a significant pick-up in tail risk, as the share of credit classified in the highest risk categories has remained similar to 2022 levels.

The following section delves into the patterns observed in the average PD of different firm sizes and sectors based on lending dynamics and developments in credit quality.

1 Excluding non-performing exposures and write-offs.

2 Where a specific lending bank does not use the IRB approach and therefore does not provide default risk information for a firm, that firm is assigned the average PD calculated by other banks using IRB models. Alternatively, where no risk information is available for a borrower firm, it is imputed the contemporaneous average PD of firms in the same sector (NACE Rev. 2 division level), of a similar size and with the same loan status (performing or stage 2). On average, across all the periods under review, 59.3% of the PD data are drawn directly from the CCR. After imputing PDs for each firm within the same period, 16.4% of the credit stock still has no PD assigned. These are imputed using aggregated information at sector, firm size, period and loan classification levels.

3 According to Article 160 of Regulation (EU) 575/2013 (CRR), even where internal models or the data available indicate a PD below 0.03%, a mandatory minimum of 0.03% must be applied to ensure a prudent basis for calculating credit risk. Accordingly, a firm is considered to lack PD information if the bank assigns a PD below that threshold.

4 The CQS approach is used by the European Central Bank to assess the solvency of firms in Eurosystem credit operations.

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To this end, the change in the average PD in each quarter is broken down into the following four factors:<sup>5</sup>

1 *Change in fixed firm PD* measures how the average PD would have changed in the absence of incoming and

Chart 1  
Average PD of bank lending to NFCs, by sector (a)

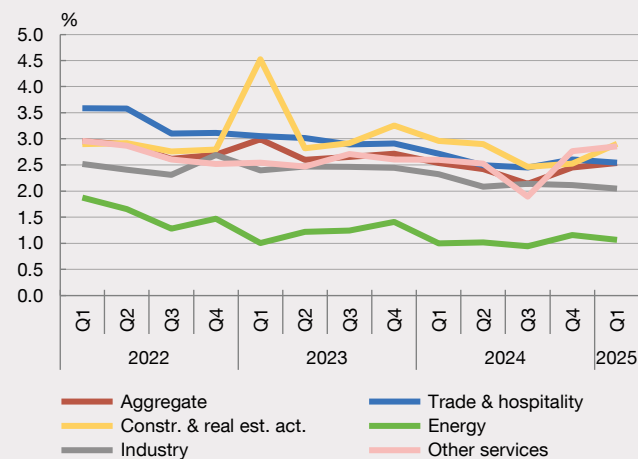


Chart 2  
Average PD of bank lending to NFCs, by firm size (a)

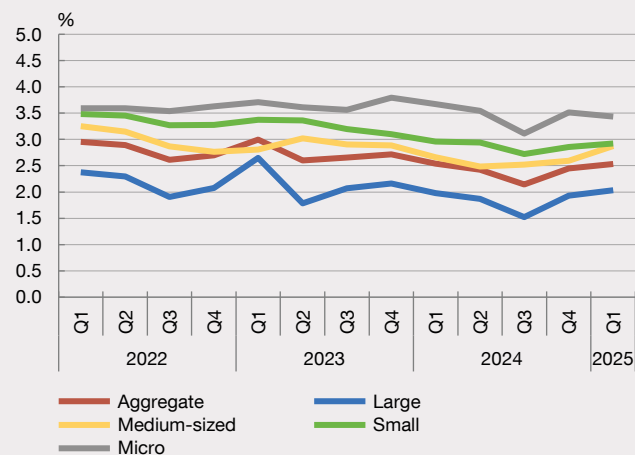


Chart 3  
Distribution of the stock of bank lending to NFCs, by PD category

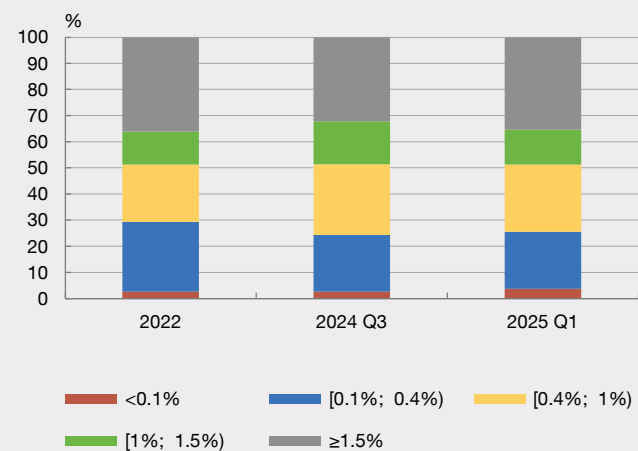
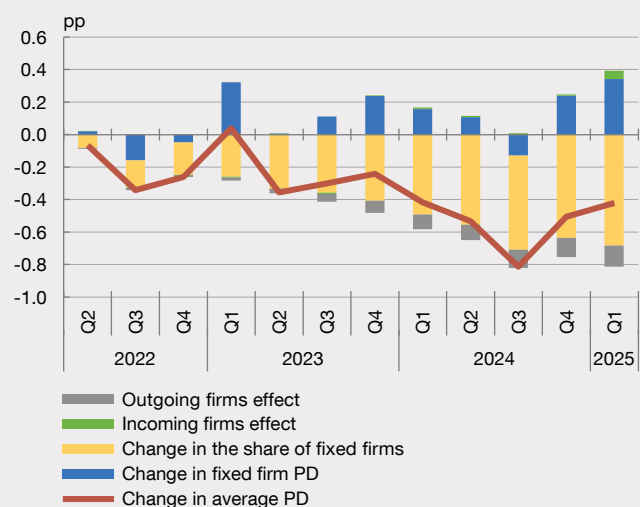


Chart 4  
Contributions to the cumulative change in the average PD of corporate lending (a)



SOURCE: Banco de España.

a Average of the PDs estimated by each lender for each NFC, weighted by share of lending. Excluding non-performing exposures and write-offs. Where there is no information on PD, firms are assigned their average PD as estimated by other lenders using IRB models or, where that is not possible, the contemporaneous average PD of firms in the same sector, of similar size and with the same loan status (performing or stage 2).

5 For more details, see Dmitry Khametshin, Sergio Mayordomo and Ana del Río. (2025). "Box 3. Probability of default in bank lending to firms: recent developments". In Banco de España. *Report on the financial situation of households and firms. Second half of 2024*, pp. 37-39.

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outgoing firms, with each borrower's share of the debt remaining stable.

- 2 *Change in the share of fixed firms* reflects changes in the weight of firms that remain borrowers at the end of the quarter.
- 3 *Incoming firms effect* evaluates whether new borrowers have higher or lower credit quality (either because they receive new loans during the quarter or because their non-performing loans are reclassified as performing or stage 2) than those that were already borrowers at the beginning of the quarter.
- 4 *Outgoing firms effect* measures the effect of the average PD of firms that no longer have bank debt and those whose loans become classified as non-performing or write-offs by the end of the quarter.<sup>6</sup>

Chart 4 shows the development of the four factors considered for all NFCs.<sup>7</sup> Since 2022, the increase in PD was shaped almost entirely by the component that estimates credit risk under the assumption that the debt and borrower structures remain unchanged, i.e. the higher PD was the result of the change in the fixed firms' risk. Focusing on the last two quarters (which saw the PD rise), this would have contributed a 47 bp increase. Incoming firms that have received loans during the last two quarters have poorer credit quality than those that were already borrowers, contributing to a 4 bp rise in the PD. The other two components appear to have contributed to a drop in credit risk, although the most significant effect is that associated with the change in the share of fixed firms (-10 bp), as the reallocation of credit within that group tended to be concentrated among the most creditworthy ones.

To look further into the increase in credit risk observed in the last two quarters, Chart 5 breaks down developments in sectoral PD from 2024 Q1. In sectors where the average PD has picked up recently – construction and real estate activities, trade and hospitality, energy, and other services – this deterioration is mainly down to an increase in the

risk associated with the outstanding stock of credit, assuming no change to the debt and borrower structures (i.e. down to a rise in fixed firm risk).

While this component has also deteriorated in the industrial sector, its impact has been offset by a reallocation of loans towards lower-risk firms that are already borrowers, i.e. by the increase in the weight of fixed firms with better credit quality.

By contrast, the credit quality indicators relating to both incoming and outgoing firms have improved across all sectors, except in energy and other services, where incoming firms have contributed more significantly to the increase in the PD.

Lastly, in order to analyse unevenness in PD developments by business size, the previous exercise has been repeated, this time differentiating by firm size (Chart 6), evaluating the contribution of the four previously defined factors to changes in risk for micro, small, medium-sized and large enterprises. The rise in the PD of large firms is mainly driven by a greater deterioration in the factor relating to the risk of their outstanding credit, with the debt and borrower structures remaining unchanged. Moreover, the deterioration in credit quality has not been offset by improvements in the credit quality of new loans to new and existing customers. By contrast, the increase in PD has been more moderate among other firms due to the fact that the rise in fixed firms' risk has been partially offset by the higher credit quality of new loans.

In short, recent developments in Spanish firms' credit risk reflect a moderate rise in PD, particularly in sectors such as construction and real estate activities and other services, as well as among larger firms. Despite this deterioration, there is no significant increase in the tail risk. In addition, the reallocation of credit to more solvent borrowers has helped to mitigate the deterioration in this credit risk. This finding is consistent with the hypothesis that banks' allocation of new lending is contributing positively to maintaining the credit quality of bank loans.

6 In order to characterise the profile of outgoing firms, credit developments are analysed between 2024 Q4 and 2025 Q1. Of the total stock of credit classified as performing or stage 2 at end-2024, 86.9% remains so, 12.7% has been repaid and only 0.4% has been reclassified as non-performing or written off.

7 Note that for 2025, changes in the factors are accumulated over just one quarter, given that data are only available for Q1.

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Chart 5

Contributions to the cumulative change in the average PD of corporate lending since 2022, by sector

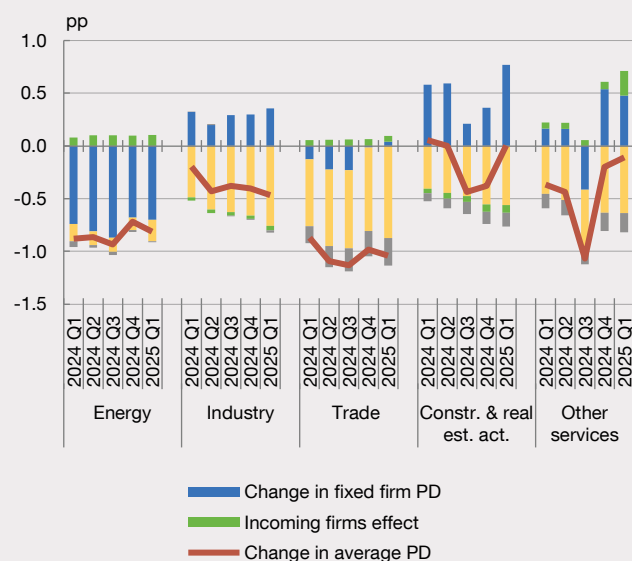
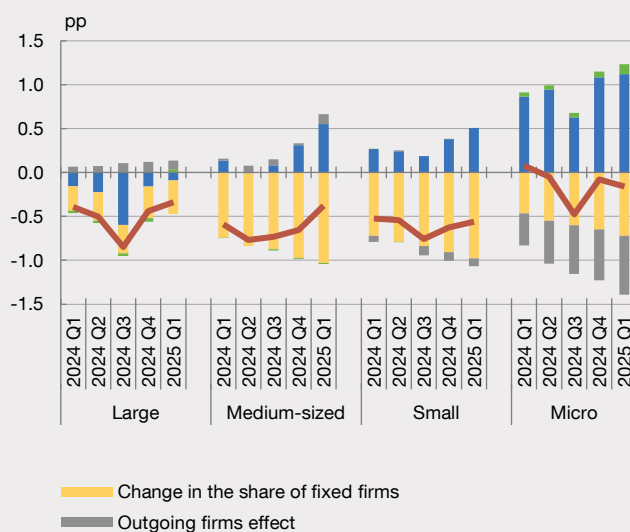


Chart 6

Contributions to the cumulative change in the average PD of corporate lending since 2022, by size



SOURCE: Banco de España.