Box 3.1

BANK LENDING AND OTHER FINANCING TO THE MOST ENERGY-INTENSIVE SECTORS OF THE SPANISH ECONOMY

The outbreak of the Iran war in February prompted a surge in hydrocarbon and electricity prices across Europe. In an environment in which this energy shock could persist for some time (see Chapter 5), this box analyses the characteristics of financing provided to the productive sectors most affected by the energy price hike in Spain, with a particular focus on bank lending. The aim is to identify the pre-existing financial strengths and vulnerabilities of these sectors, to learn how well they will be able to address the current crisis, and to quantify their importance for the financial system as a whole.

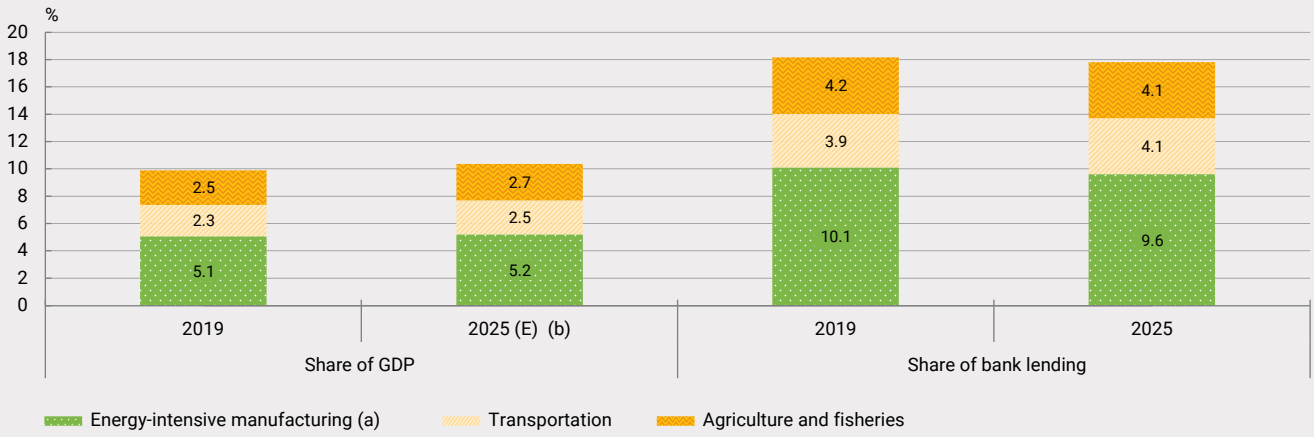
Specifically, this analysis focuses on three groups of productive sectors: energy-intensive manufacturing,[1] transportation and the non-extractive primary sector (agriculture and fisheries). These groups have been identified in previous Banco de España publications as being most sensitive to a protracted increase in energy prices, whether directly owing to the higher proportion of energy products in their production costs, or indirectly on account of potential price rises in their other inputs.[2]

Together these sectors account for around 10% of GDP, some 12% of employment and approximately 18% of bank lending to firms and the self-employed in Spain (Chart 1). Individually, energy-intensive manufacturing accounts for around 10% of bank lending (compared with 5% of GDP), while transportation and the non-extractive primary sector each account for some 4% of bank lending (between 2.3% and 2.7% of GDP). Accordingly, these energy-intensive sectors have a larger share of bank lending than of overall economic activity.

Sources of financing for energy-intensive sectors

The composition of financing to all firms and of financing to the sectors analysed (Table 1) was constructed drawing on the Banco de España's Integrated Central Balance Sheet Database (CBI).[3] Energy-intensive manufacturing

Chart 1
Sectors as a proportion of GDP and bank lending



SOURCES: INE and Banco de España.

a Includes the following industries: food, wood and cork, paper and printing, manufacture of coke and refined petroleum products, rubber and plastic products, non-metallic mineral products and basic metals.
b Estimate based on changes in GVA by industry, drawing on the Banco de España's March 2026 projections and the sectoral distribution based on each sector's respective share in 2023.

1 Includes the following industries: food, wood and cork, paper and printing, manufacture of coke and refined petroleum products, rubber and plastic products, non-metallic mineral products and basic metals.

2 Alejandro Fernández Cerezo, Iván Kataryniuk and Francisco José Rodríguez. (2023). "The Spanish economy's greater resilience vis-à-vis the euro area in 2023: the role of sectoral composition". *Economic Bulletin - Banco de España,* 2023/Q4, 03. https://doi.org/10.53479/34552. And also Pablo Aguilar, Rubén Domínguez-Díaz, José-Elías Gallegos and Javier Quintana. (2026). "The Transmission of Foreign Shocks in a Networked Economy". Documentos de Trabajo, 2607, Banco de España. https://doi.org/10.53479/42526.

3 The CBI contains accounting information on around 800,000 non-financial corporations (600,000 for 2024). Coverage stood at 45% of gross value added (GVA) of the total non-financial corporations sector (according to National Accounts) in 2024.

Table 1
Firms' financing structure

%

	Year	Equity	Bank debt	Intra-group debt	Other interest-bearing funding (b)	Non-interest-bearing funding (c)
Total	2019	48.6	13.0	11.4	5.3	21.7
	2024	49.1	11.9	9.8	6.3	22.9
Energy-intensive manufacturing (a)	2019	49.6	13.8	9.6	4.0	23.0
	2024	50.3	12.1	10.9	4.5	22.2
Transportation	2019	41.0	18.9	9.8	4.6	25.7
	2024	34.4	18.7	15.2	6.3	25.5
Agriculture and fisheries	2019	56.8	16.6	3.2	6.6	16.9
	2024	59.0	14.3	3.9	6.9	15.8

SOURCE: Banco de España.

a Includes the following industries: food, wood and cork, paper and printing, manufacture of coke and refined petroleum products, rubber and plastic products, non-metallic mineral products and basic metals.
b Includes debt securities and other interest-bearing debt (loans granted by other sectors, finance lease payables, derivatives).
c Non-interest-bearing funding, such as that arising from commercial transactions (suppliers, customer advances, etc.) and other non-cost-bearing obligations, such as remuneration and dividends payable.

has a very similar financing structure to that of total firms, with equity as its main source of funding, followed by non-interest-bearing debt[4] and bank debt with a share comparable to that of intra-group funding. The transportation sector is more heavily reliant on bank debt (around 19% compared with figures close to 10% for other sectors) and on intra-group financing, combined with a lower share of equity funding. Lastly, for the non-extractive primary sector, equity accounts for an even larger share with a similar, albeit somewhat higher, use of bank debt than for firms overall. This financial structure is consistent with the larger presence in this sector sample of small firms that tend to be more reliant on these two forms of financing.

Between 2019 and 2024 the financing structure of both energy-intensive manufacturing and the non-extractive primary sector remained relatively stable, while that of the transportation sector saw some more significant changes. Specifically, its share of equity funding fell notably, by 6.6 pp, to 34%, and its share of intra-group debt rose, by 5.4 pp, to 15%. By contrast, in 2024 its share of bank debt remained at pre-pandemic levels.

Overall, before the energy shock, moderate trends towards deleveraging and less reliance on bank debt were observed in all three sectors.[5] Of the three, transportation is the most highly leveraged and has the most interconnectedness with the banking sector, although it accounts for only a small share of total bank lending to firms.

Concentration, specialisation and number of banking relationships

Drawing on granular information from the Banco de España's Central Credit Register (CCR),[6] it is possible to analyse the degree of concentration and specialisation of the Spanish banking sector in lending to these three sectors.

4 Non-interest bearing funding, such as that arising from commercial transactions (suppliers, customer advances, etc.) and other non-cost-bearing obligations, such as remuneration and dividends payable.

5 On CBI data, the total debt-to-assets ratio fell from 50.6% in 2021 to 48.5% in 2024 in manufacturing, from 64.4% to 61.7% in transportation and from 43% to 41% in agriculture. Bank debt also fell in all three sectors.

6 The CCR contains monthly information on loans over €1,000 granted in Spain.

Chart 2
Herfindahl-Hirschman concentration index, by sector (a)

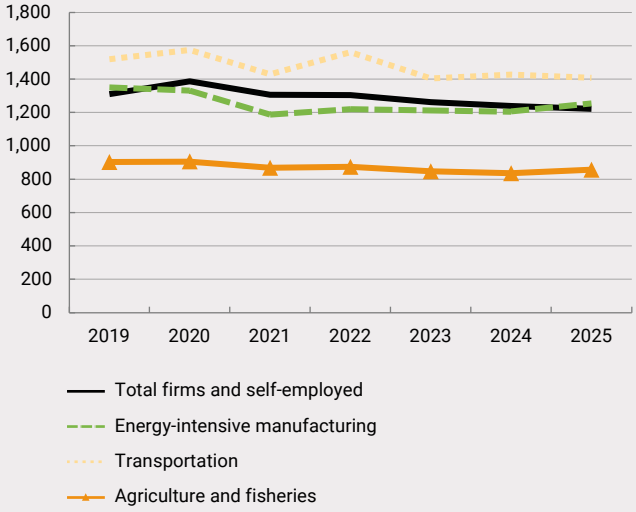
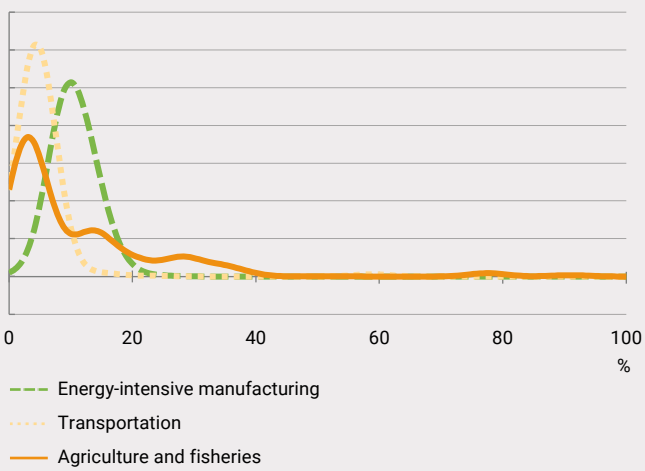


Chart 3
Distribution of share of sectors in bank loan portfolios. December 2025 (b)



SOURCE: Banco de España. Latest observation: December 2025.

a The Herfindahl-Hirschman index is the sum of market shares (expressed as a percentage) squared. The higher the index value, the higher the concentration.
b The chart depicts the density function of the weight of each sector in Spanish banks' lending to firms and the self-employed (weighted by total lending to firms and the self-employed). The density function is estimated using a kernel estimator which enables a non-parametric estimate and a continuous and smoothed graphical representation of that function.

Credit concentration in each sector, or in other words, the distribution of credit volume across different banks, is measured using Herfindahl-Hirschman indices.[7] These show some significant differences across sectors (Chart 2). In the non-extractive primary sector credit concentration is considerably lower than in the other two sectors analysed and than in overall lending to firms. The presence in the Spanish banking system of local banks, such as credit cooperatives, with an extensive relationship banking model in rural areas, helps explain this higher fragmentation.[8]

Analysis of banking specialisation examines how lending to these sectors is distributed by bank (as a share of the total corporate loan portfolio). In general, the proportion of banks with above-average specialisation in either energy-intensive manufacturing or transportation is not significant (Chart 3). This relatively homogeneous distribution helps limit the possibility of shocks to these sectors having a significant impact on an individual bank's solvency.

By contrast, there is more heterogeneity in the non-extractive primary sector, which accounts for a substantial part of the portfolio of some banks (greater specialisation), none of which are significant institutions. Combining these results shows that, in the primary sector, lending is spread across a high number of banks, although for some (for instance, more local ones) it constitutes a large part of their loan portfolio.

Following on from this point, the number of banking relationships, defined as the average number of different banks with which each firm operates, is another key factor for assessing the risks associated with the structure of bank financing. The higher the number of banking relationships, the lower reliance on each individual bank

7 The Herfindahl-Hirschman index is the sum of market shares (expressed as a percentage) squared. In this case, it is constructed for each sector, adding together the market shares of each bank in each sector.
8 For more information, see Box 3.2 of *Supervision Report 2025*.

Chart 4
Number of borrowers' banking relationships, by sector. December 2025 (a)

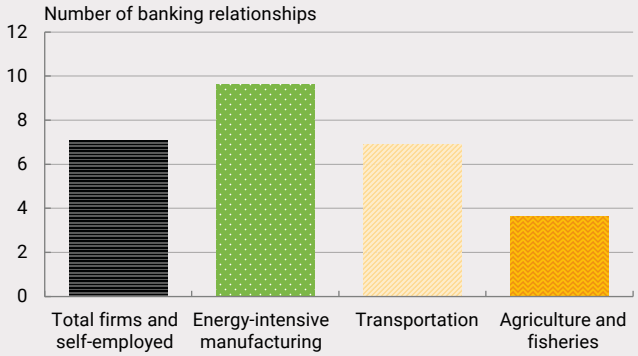
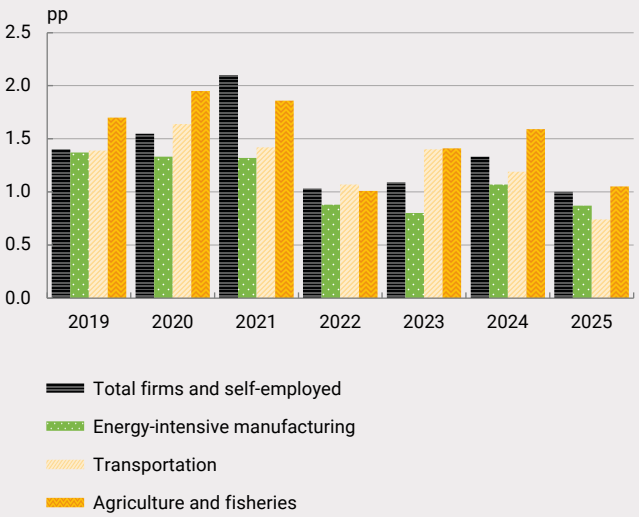


Chart 5
Interest rate spreads on new loans in each sector over the risk-free rate (b)



SOURCE: Banco de España. Latest observation: December 2025.

a The chart depicts the average number of different banks with which a firm or self-employed person in each sector operates. In the weighted figures, the number of banking relationships of each firm or self-employed person is weighted by their loan volume in the relevant sector.
b The spread between the interest rate applied to each loan and the risk-free rate at a similar maturity is calculated.

and, therefore, the greater the ability to access credit. On average, energy-intensive manufacturing firms have a higher number of banking relationships than the business sectors overall (Chart 4). This is related to the fact that these firms are generally larger, which per se facilitates greater diversification of their banking relationships.

Overall, these data show that, at system-wide level, the structure of bank lending to the sectors most sensitive to the energy shock poses no major concentration or specialisation risks to significant institutions.

Terms and conditions of loans to firms in energy-intensive sectors

The specific terms and conditions of loans are another element that can influence firms' ability to meet their credit obligations. In particular, interest rate and spreads over risk-free rates, maturity, average loan size, percentage of collateralised loans and loan amount to value of collateral (LTV ratio) are considered.[9]

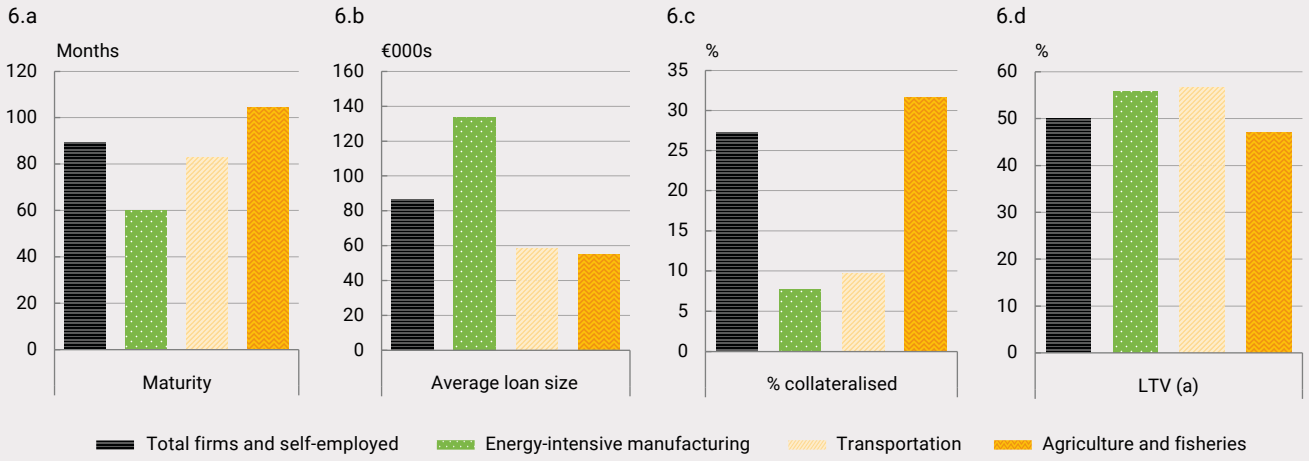
For this analysis, it is important to note that the business structure and demographics of these sectors, as well as their average profitability and the volatility of their profitability, exert some influence on the terms and conditions of the bank loans they receive. Specifically, in terms of firm size, the non-extractive primary sector has a large proportion of smaller firms, transportation has a larger share of medium-sized firms and, on average, energy-intensive manufacturing firms are larger and the sector has a higher share of large firms.

Interest rate spreads on new loans are aligned with each sector's credit risk profile, discussed in the next section.[10] The spreads in the non-extractive primary sector are

9 Interest rates determine the debt service burden and thus firms' ability to bear higher costs related to rising energy prices. Maturity influences vulnerability, as shorter maturities may force refinancing under worse conditions. Average loan size defines total exposure, such that the most capital-intensive sectors, with higher debts, will face greater pressure in the event of an economic downturn. Lastly, the existence of collateral or a high LTV ratio reflects risk perception and collateral quality, factors that could affect obtaining additional funding in adverse environments.

10 The spread between the interest rate applied to each loan and the risk-free rate at a similar maturity is calculated.

Chart 6
Loan characteristics by sector



SOURCE: Banco de España. Latest observation: December 2025.

a LTV is only calculated for collateralised loans.

slightly wider than average, partly on account of the smaller size of the sector firms (Chart 5). In energy-intensive manufacturing and transportation, spreads are somewhat narrower than average, consistent with larger corporate structures that may have lower risk or greater bargaining power in financing.

The average maturity of loans in energy-intensive manufacturing and transportation is shorter than that of the business sectors overall, while in the non-extractive primary sector it is longer than average (Chart 6.a). In energy-intensive manufacturing, a significant portion of bank financing is earmarked for working capital, to pay for energy and other inputs. This favours the use of short-term loans that are regularly reset. By contrast, in the primary sector, credit is more closely linked to investment in fixed assets with long useful lives, such as land, machinery or infrastructure. This warrants longer maturities even at smaller firms. In the transportation sector, financing is mainly used to purchase the vehicles and equipment needed to pursue the business activity. Shorter maturities require more frequent rollovers, which increases vulnerability in an environment of tight financial conditions.

Average loan size in the different sectors also seems to be associated with their business demographics (Chart 6.b). The higher average loan size in energy-intensive manufacturing reflects the scale of production and the production model predominant in the sector which comprises mainly large firms. Conversely, in transportation and the non-extractive primary sector, small and medium-sized enterprises (SMEs) and the self-employed are predominant and, therefore, average loans are smaller.

As regards the use of collateral in financing, the percentage of collateralised loans is well below the business sector average in energy-intensive manufacturing and transportation. By contrast, in the non-extractive primary sector it is above the average (Chart 6.c), owing to the nature of its assets and its financing model, marked by the use of land, among other assets, as typical collateral.

Related to the previous point, LTV at origination for collateralised loans also varies across sectors (Chart 6.d) and is lowest in the non-extractive primary sector where collateral is used more intensively to mitigate risks.

Overall, the credit terms and conditions of the energy-intensive manufacturing sector have a somewhat higher risk profile, with larger average loan size and lower collateralisation. Moreover, its reliance on shorter maturities could make it more sensitive to a worsening economic environment. Although these terms and conditions partly reflect its larger scale and financial clout,

Chart 7.a
PD at one year, by sector (a)

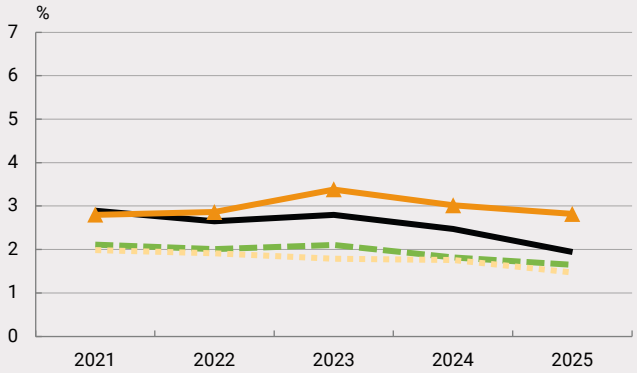
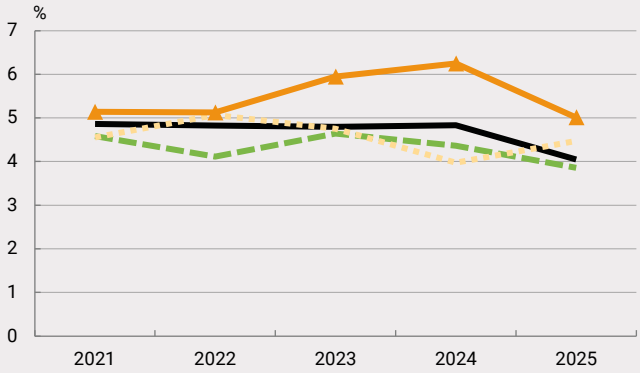
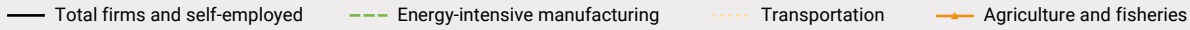


Chart 7.b
NPL ratio, by sector (a)





SOURCE: Banco de España. Latest observation: December 2025.

a Probability of default (PD) over a one-year time horizon assigned by banks that use internal credit risk assessment models. A firm's weighted average PD is assigned to all its loans, even if they are granted by other banks.

they also represent a certain degree of vulnerability to a severe and protracted energy crisis.

Credit quality

Credit risk indicators – both the probability of default[11] (ex ante credit quality metric) and the non-performing loan (NPL) ratio (ex post metric) – show that the non-extractive primary sector poses a higher credit risk than the other two sectors analysed (Charts 7.a and 7.b).

In any event, in recent years credit risk has performed favourably in all these sectors. It is also noteworthy that, of the three, the non-extractive primary sector has felt the brunt of the increase observed in energy prices since mid-2021 and the subsequent monetary policy tightening, while energy-intensive manufacturing and transportation have been notably resilient.

Even so, should energy prices remain high for long, firms' credit risk indicators could gradually deteriorate, especially for those less able to adjust their financial position, such as SMEs or the self-employed, both more prevalent in the primary sector, or for those which, despite their larger scale, are also more reliant on short-term and unsecured financing, more prevalent in transportation and energy-intensive manufacturing.

Accordingly, in an environment in which geopolitical tensions could continue to exert persistent pressure on energy prices, it is essential that these sectors and, in particular, their financing conditions and risk indicators, are closely monitored.

11 Banks that use internal models to assess credit risk assign a probability of default (PD) over a one-year time horizon to each loan. This PD is reported quarterly to the Banco de España's CCR. PDs are analysed using the loans granted by the banks that use these models, although the average PD of each firm is assigned to all its loans, even if they are granted by other banks. Thus, at December 2025, the percentage of credit in loans with an assigned PD is over 80%.