

Box 2

THE IMPACT OF CREDIT CONSTRAINTS ON SMEs' INVESTMENT DURING THE RECENT PERIOD OF MONETARY POLICY TIGHTENING

Business investment is a driving force of economic activity and influences firms' productivity and growth. Given that the investment decisions of firms depend on, among other factors, the availability of financial resources, difficulties in obtaining external financing can adversely impact investment when a firm's internal financing is insufficient to fund their investment projects.¹ This box analyses how constraints on Spanish firms' access to bank financing can impact their propensity to invest in fixed assets, using anonymised granular data from the Survey on the Access to Finance of Enterprises (SAFE).

The analysis focuses on small and medium-sized enterprises (SMEs). According to estimates, in 2022 these enterprises accounted for just over 39% of total gross fixed capital formation² in Spain.³ Large firms are excluded since they are underrepresented in the SAFE and because, for confidentiality reasons, the survey provides no information on their sector of activity, which is an important factor for explaining differences both in investment and in financing constraints. Furthermore, the SME segment is particularly relevant for the purposes of this box. First, these firms typically face greater credit constraints.⁴ Second, according to the latest wave of the Banco de España Business Activity Survey, conducted in 2024 Q2, investment by SMEs – particularly micro-enterprises (those with fewer than 10 employees) and small firms (10-49 employees) – has lagged behind that of large firms over the past year. This trend is expected to continue over the next 12 months.⁵

The analysis focuses in particular on the period from April 2022 to March 2024, which was marked by monetary

policy tightening and weak investment.⁶ Specifically, it compares developments in investment and credit constraints during this period with those observed before the pandemic (between October 2017 and September 2019),⁷ a period characterised by robust investment and historically low bank lending costs. It is important to note that this box is not intended to analyse the effect of higher borrowing costs on investment; rather, the focus is on the impact of bank credit constraints. While the SAFE provides qualitative information on developments in interest expenses (increase, no change, decrease), it offers no information on the magnitude of these changes, which would be crucial for such analysis. However, to the extent possible, efforts are made to take this effect into account in order to isolate the impact associated with financing constraints.

Chart 1 shows the propensity of Spanish SMEs to increase fixed asset investment, measured as the net percentage of SMEs reporting that they have raised such investment (the percentage of those reporting an increase less the percentage of those reporting a decrease in the last six months). The average percentage for the period April 2022 to March 2024 was 8.4 pp⁸ lower than that for the pre-pandemic period. A similar decline (8.9 pp) was observed in the euro area. This reduction in Spanish SMEs' propensity to increase fixed asset investment owes both to a higher average percentage of SMEs that have reduced investment (2.1 pp) and, in particular, to the lower average percentage of firms that have increased investment (6.3 pp).

1 See, for example, Miguel García-Posada (2019). "Credit constraints, firm investment and employment: Evidence from survey data". *Journal of Banking & Finance*, Vol. 99, pp. 121-141.

2 Estimated based on the sample of more than 775,000 firms included in the Banco de España's Central Balance Sheet Data Office integrated database (CBI) in 2022.

3 For a detailed analysis of business investment in Spain between the onset of the pandemic and 2022, see Miguel Ángel González-Simón, Blanca Jiménez-García and Carmen Martínez-Carrascal. (2024). "A disaggregated analysis of business investment since the outbreak of the pandemic". *Economic Bulletin - Banco de España*, 2024/Q2, 04.

4 Numerous studies have found a negative relationship between business size and the likelihood of credit constraints. See, for example, Fabio Schiantarelli. (1996). "Financial constraints and investment: methodological issues and international evidence". *Oxford Review of Economic Policy*, 12(2), pp. 70-89.

5 Alejandro Fernández Cerezo and Mario Izquierdo. (2024). "Banco de España Business Activity Survey: 2024 Q2". *Economic Bulletin - Banco de España*, 2024/Q2, 05.

6 According to National Accounts data, the business investment rate (defined as the ratio of gross fixed capital formation to gross value added) of non-financial corporations decreased from 23.9% in 2022 Q2 to 21.7% in 2023 Q4.

7 A period covered by four waves of the SAFE is selected to ensure the same number of waves in each period.

8 Throughout this box, comparisons between the pre-pandemic period and the monetary tightening period are drawn by contrasting the arithmetic mean of the net percentages from the four SAFE waves conducted during each period.

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Chart 1
SMEs' fixed asset investment (a)

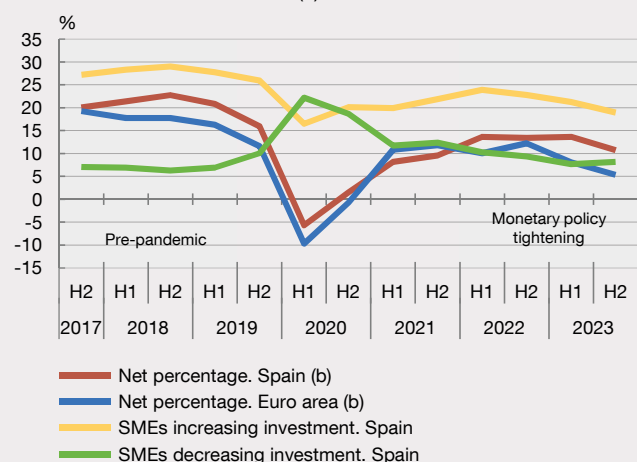


Chart 2
SMEs experiencing bank credit constraints (a) (c)

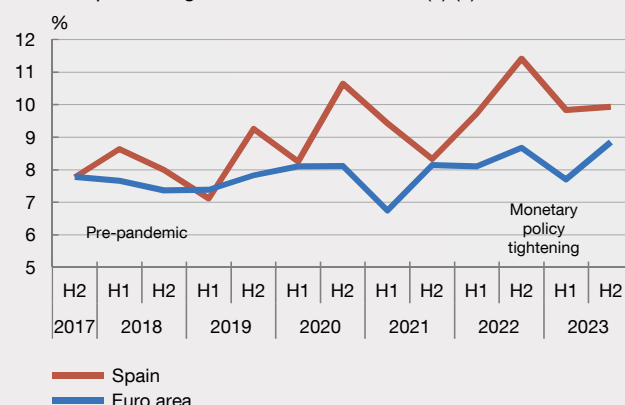


Chart 3
Investment of Spanish SMEs, by access to financing (a) (d)

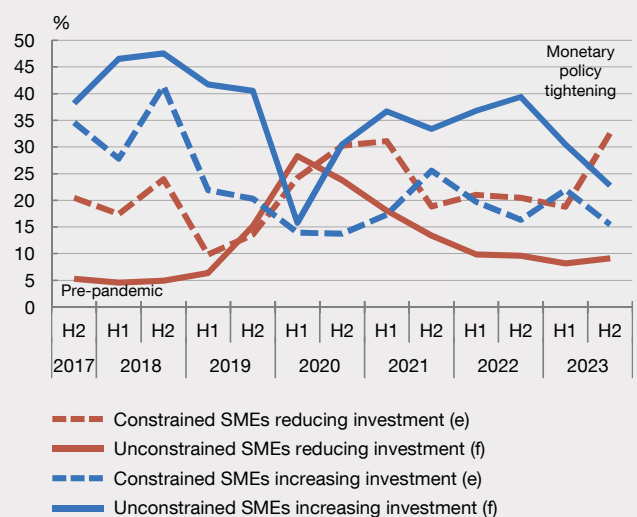
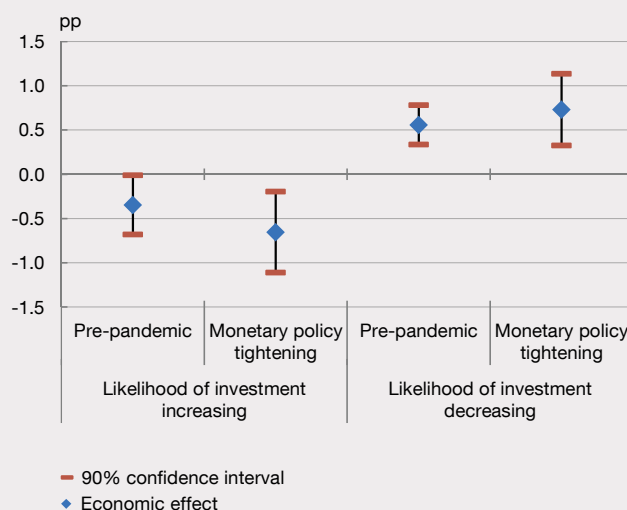


Chart 4
Economic effect (with confidence intervals) of bank credit constraints on the likelihood of investment increasing or decreasing in each period (g)



SOURCES: ECB and Banco de España.

- a "2017 H2" denotes the October 2017 to March 2018 wave, "2018 H1" denotes the April to September 2018 wave, and so on.
- b The percentage of firms reporting an increase in fixed asset investment in the past six months less the percentage reporting a decrease.
- c The percentage of firms for which bank loans (including subsidised loans) are relevant.
- d The percentage of SMEs classified as constrained or unconstrained.
- e A firm is considered bank credit constrained if any of the following four circumstances applies: (i) it did not apply for a loan in the past six months for fear of rejection, (ii) it applied for a bank loan in the past six months and received less than 75% of the requested amount, (iii) it refused a loan offer because the cost was too high and (iv) its application was rejected by the bank.
- f A firm is considered to face no bank credit constraints if it applied for a loan in the past six months and received 75% or more of the requested amount.
- g Effects obtained by estimating two linear probability models using a sample of Spanish SMEs (classified as constrained and unconstrained during the periods 2017 H2 to 2019 H1 and 2022 H1 to 2023 H2) taken from the SAFE. The dependent variable in the first model (first and second bars) is a binary variable that takes the value of 1 if investment increases and 0 otherwise, while in the second model (third and fourth bars) it is a binary variable that takes the value of 1 if investment decreases and 0 otherwise. The explanatory variable of interest is a binary variable that indicates whether the firm is bank credit constrained or not. The first and third bars indicate the coefficient and confidence interval of the regressor multiplied by the proportion of credit constrained firms during the pre-pandemic period. The second and fourth bars indicate the coefficient and the confidence interval of the regressor multiplied by the proportion of constrained firms during the period of monetary policy tightening. The control variables are described in footnote 12.

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THE IMPACT OF CREDIT CONSTRAINTS ON SMEs' INVESTMENT DURING THE RECENT PERIOD OF MONETARY POLICY TIGHTENING (cont'd)

To analyse developments in bank financing constraints, an indicator is constructed based on the responses of SMEs that consider bank financing to be a relevant source of funding.⁹ This indicator refers to bank loans, which are more closely associated with investment projects than credit facilities, which are typically used to finance inventories and working capital. According to this indicator, a firm is considered constrained if at least one of the following four circumstances applies: i) its financing application was rejected, ii) it received less than 75% of the requested amount, iii) it refused the bank's offer because the cost was too high, or iv) it didn't apply for a loan for fear of rejection (discouraged borrowers).¹⁰ Conversely, a firm is deemed to face no bank credit constraints if it applies for a loan and receives 75% or more of the requested amount. The average percentage of bank credit-constrained SMEs was somewhat higher in the period April 2022 to March 2024 than in the pre-pandemic period, with the difference being more pronounced in Spain (2.3 pp) than in the euro area (0.8 pp) (see Chart 2).

Chart 3 shows the change in the percentage of Spanish SMEs that increase or decrease investment, distinguishing between those that are experiencing bank credit constraints (constrained firms) and those that are not (unconstrained firms). During both the pre-pandemic period and the more recent period, the average percentage of SMEs that increased their investment was lower for the constrained group (31.4% and 18.4%, respectively)¹¹ than for the unconstrained group (43.5% and 32.3%, respectively). Similarly, in both periods the average percentage of SMEs that decreased investment was higher for constrained firms (17.9% and 23.2%, respectively) than for unconstrained firms (5.3% and 9.2%, respectively). Furthermore, in the period October 2023 to March 2024, the average percentage of constrained SMEs that reduced their investment rose significantly (by 13.8 pp to 32.6%), while the percentage of unconstrained SMEs that lowered their investment rose only slightly (by 0.9 pp to 9.1%).

For a more formal analysis of the link between business investment and bank credit constraints, two linear probability models are estimated. These models are applied to a sample of Spanish SMEs that consider bank financing to be relevant and whose internal funds were insufficient to cover their investment expenses during the two periods analysed. The dependent variable is binary; in the first model it takes a value of 1 if investment increases and 0 otherwise, while in the second it takes a value of 1 if investment decreases and 0 otherwise. In both models, the explanatory variable of interest (also binary) indicates whether the firm is constrained or not. Variables that measure different firm characteristics, such as sector, size and economic expectations, are included as control variables.¹² In order to calculate the economic effect of bank credit constraints on the likelihood of an increase or decrease in investment, the coefficient of the explanatory variable of interest is multiplied by the share of constrained firms (out of the total number of SAFE SMEs) in each of the two periods. However, this approach cannot be used to estimate a causal link between credit constraints and investment, only associations between the two, since investment opportunities cannot be fully captured.

The results show that a constrained SME is substantially less likely to raise its investment than an unconstrained one in both periods. From a statistical standpoint, the likelihoods are of a similar magnitude in the pre-pandemic period and in the monetary tightening period. However, given that a higher share of SMEs were constrained in the more recent period (6.9%) than in the pre-pandemic period (5.1%), the adverse economic effect on investment would be 0.3 pp greater in the more recent time window (see Chart 4, first and second bars). Specifically, credit constraints in that period would have reduced the percentage of SMEs that raised their investment by 0.7 pp, compared with a reduction of 0.4 pp in the pre-pandemic period.

In addition, a constrained SME is substantially more likely to reduce its investment than an unconstrained SME in both

⁹ A source of financing is considered "relevant" when the firm indicates that it has used it in the past or is considering using it in the future.

¹⁰ The definition of constrained firm aligns with that used in the European Central Bank's SAFE.

¹¹ These figures are obtained by calculating the arithmetic mean of the percentage of constrained SMEs that increased investment in the respective sets of SAFE waves (four during the pre-pandemic period and four during the monetary tightening period).

¹² In particular, binary variables are included indicating whether the general or firm-specific outlook has deteriorated and whether interest expenses have increased, along with other variables that control for the firms' most pressing problems (access to finance, finding customers, competition, labour and production costs and availability of skilled staff). Firm characteristics (turnover, age, legal form, ownership structure and export activity) are also included as control variables, along with sector-size-time fixed effects, for which there are four sector categories (industry, construction, wholesale or retail trade and other services), size is measured by the number of employees and time corresponds to each wave of the SAFE.

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periods. Again, the magnitude of the result is statistically similar in both of the time sub-samples. However, given that the proportion of constrained SMEs in the monetary tightening period is 1.8 pp higher than in the pre-pandemic period, the adverse economic effect on investment would be 0.2 pp larger in the more recent period (see Chart 4, third and fourth bars). Specifically, credit constraints in the latter window would have increased the percentage of SMEs that reduced their investment by 0.7 pp, compared with 0.6 pp in the pre-pandemic period.

Similar results are found for the euro area, where, during the period of monetary policy tightening, credit constraints

reduced the percentage of SMEs that raised their investment by 0.6 pp and increased the percentage of SMEs that reduced it by 0.4 pp.

In conclusion, the evidence presented in this box suggests that bank credit constraints contributed negatively to Spanish SME's propensity to invest both during the pre-pandemic period and, to a greater extent, during the recent period of monetary tightening. In any event, the impact on the percentage of firms that have increased or reduced their investment has been limited in both periods given the relatively small proportion of SMEs that experienced bank financing constraints.