

2 Financing constraints in euro area regions

This box presents new evidence on access to finance at regional level within the euro area. The Survey on Access to Finance of Enterprises (SAFE) has been carried out by the ECB and the European Commission since 2009 on a biannual basis. It provides information on developments in firms' access to and use of external financing in the euro area, broken down by firm size and sector. Until now, analysis of the results of this survey has focused mainly on differences between euro area countries, disregarding heterogeneity at a regional level within countries. However, there is growing evidence that the regional dimension of access to finance is important even in integrated financial markets, particularly for small and medium-sized enterprises (SMEs). Indeed, the level of regional financial development – which often has important implications as regards the accessibility of external sources of finance – is positively correlated with growth at a regional level. At the same time, regional market conditions matter in terms of determining financing constraints that are not related to firms' individual financial characteristics and circumstances.¹⁴

Financing constraints vary from region to region across the euro area. Since April 2014, information on the regions where surveyed companies are located has been collected by the SAFE survey on the basis of level 1 of the Nomenclature of Territorial Units for Statistics (NUTS). Thus, the 12 euro area countries covered by the survey are broken down into 57 major socio-economic regions.¹⁵ Chart A shows the level of financing constraints in these various regions by firm size, based on survey results from 2014 to 2016.¹⁶ Under the definition used in the survey, a firm is considered to be financially constrained if it applies for a bank loan or credit line and its application is rejected (or accepted only in part) or it refuses the loan or credit line on offer because the associated costs are too high. A firm is also considered to face financing constraints if it needs a bank loan or credit line but is discouraged from applying for one. The percentage of firms that have experienced financing constraints appears to vary from region to region within individual countries. In addition, smaller companies appear to be more likely to experience financing constraints in most regions, with more pronounced regional differences relative to larger companies.

¹⁴ See Guiso, L., Sapienza, P. and Zingales, L., "Does local financial development matter?", *Quarterly Journal of Economics*, Vol. 119, 2004, pp. 929-969, and Deloof, M. and La Rocca, M., "Local financial development and the trade credit policy of Italian SMEs", *Small Business Economics*, Vol. 44, 2015, pp. 905-924.

¹⁵ The countries in question are Belgium (3 regions), Germany (16 regions), Ireland (1 region), Greece (4 regions), Spain (7 regions), France (9 regions), Italy (5 regions), the Netherlands (4 regions), Austria (3 regions), Portugal (3 regions), Slovakia (1 region) and Finland (1 region).

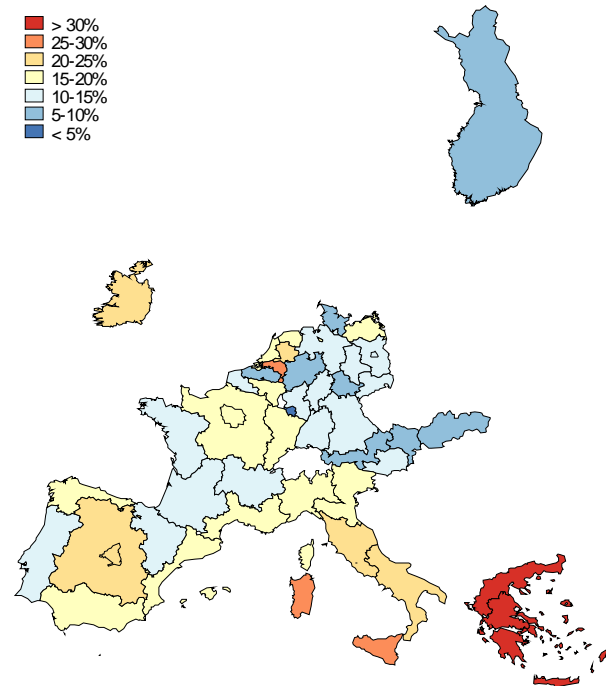
¹⁶ Figures in the charts in this box are weighted using the calibration scheme employed by the survey. See www.ecb.europa.eu/stats/pdf/surveys/sme/methodological_information_survey_and_user_guide.pdf for an explanation of the weights used. The same weights are used in the regression analyses.

Chart A

Financing constraints across regions

Micro and small enterprises (fewer than 50 employees)

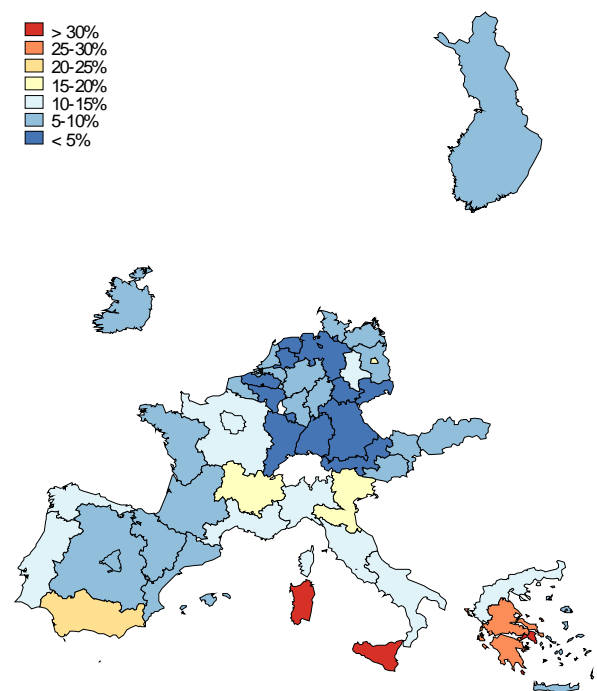
(weighted percentage of firms that have experienced some form of financing constraint)



Medium-sized and large enterprises (50 employees or more)

Legend for Medium-sized and large enterprises (50 employees or more):

- > 30%
- 25-30%
- 20-25%
- 15-20%
- 10-15%
- 5-10%
- < 5%



Sources: SAFE survey and ECB calculations.

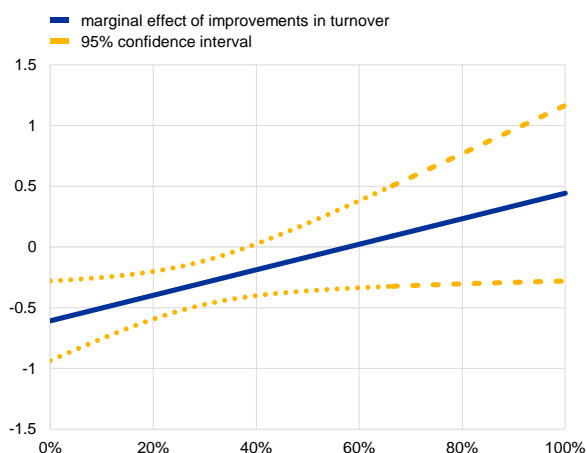
Note: The maps show regional aggregates at NUTS level 1 using data from the last four rounds of the SAFE survey (which were conducted between 2014 and 2016).

Market conditions at regional level affect the degree of financing constraints.

Although around 60% of all regional variation in financing constraints is due to differences between countries, regional differences within countries account for almost all of the remaining 40% or so. Econometric analysis suggests that although positive developments in firms' performance (e.g. improvements in turnover) reduce the degree of financing constraints at regional level, this correlation depends on the regional economic conditions. This is mainly the case in regions where fewer firms consider that the economic outlook has overall improved (see Chart B). As the general economic outlook for firms in a given region becomes more positive, firms' performance becomes less relevant as a factor determining firms' access to finance.

Chart B**Financing constraints and firms' performance in a changing business environment**

(marginal effect that improvements in turnover have on financing constraints as a function of the percentage of firms considering that the economic outlook has improved)

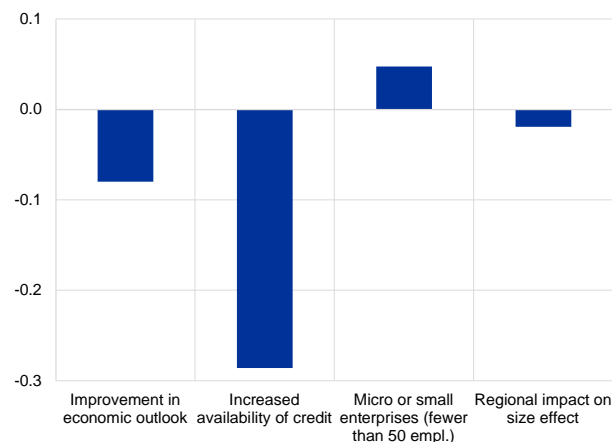


Sources: SAFE survey, Eurostat and ECB calculations.

Notes: This chart shows the marginal effect that the percentage of firms with increased turnover over the last six months has on financing constraints (with 95% confidence intervals) as a function of the percentage of firms considering that the economic outlook has improved overall. These results are based on a simple OLS regression at regional level, including an interaction term, regional controls, and country and wave dummies. The marginal effect of improvements in turnover becomes statistically insignificant when the 95% confidence interval is crossing zero (see upper band in the chart).

Chart C**Factors affecting the likelihood of firms facing financing constraints**

(marginal effect on the likelihood of a firm facing financing constraints; based on a probit regression)



Sources: SAFE survey and ECB calculations.

Notes: The dependent variable is binary, taking a value of 1 if the firm has reported financing constraints in the preceding six months and a value of 0 otherwise. The sample of firms comprises all firms that either (i) applied for bank credit or (ii) needed credit, but were discouraged from applying. The bar labelled "Regional impact on size effect" shows the interaction between firm size and a dummy variable that takes a value of 1 if the percentage of firms in a specific region which signal that the general economic outlook has improved in the previous six months is higher than the percentage at the level of the country as a whole. This estimation is based on a weighted probit regression, including country/industry and time fixed effects, as well as cluster-robust errors at regional level.

It appears that regional conditions are particularly important for smaller firms in terms of determining access to finance.

In order to further investigate the relative importance of the region where firms are located, the probability of a firm having only limited access to the credit market is estimated as a function of the regional economic environment and market conditions, alongside the firm's specific characteristics, financial situation and capital structure (see Chart C).¹⁷ On average, the probability of facing financing constraints is 29% lower where a firm reports increased availability of credit and around 8% lower where its business environment is improving. In addition, micro and small enterprises are around 5% more likely to experience financing constraints than medium-sized and large companies. However, that size effect varies depending on the economic outlook for the region in question relative to the overall outlook for the country as a whole, with the probability of micro and small firms experiencing financing constraints falling significantly (by around 2 percentage points) if local financing conditions are more positive than those observed at the level of the country as a whole.

¹⁷ In this firm-level specification, a first set of variables controls for firms' size (in terms of the number of employees and the level of turnover) and age and whether they are independent or family-owned. A second set controls for firms' financial situation in terms of their sales and own funds, as well as their perceptions regarding the general economic outlook and the availability of credit. All of these variables are binary, taking a value of 1 if there is an improvement in the relevant factor. In addition, a third set of variables takes account of the use of retained earnings and trade credit as alternatives to bank credit. All econometric specifications include wave and sectoral dummies.

Overall, firm-level survey data confirm that regional market conditions affect the financing constraints faced by firms. Greater attention needs to be paid to determinants of regional differences in the availability of credit, looking at whether these are predominantly related to the nature of the local banking sector (i.e. its level of development) or local borrowers' liquidity preferences.¹⁸ Ultimately, the use of such local information will provide additional guidance regarding the impact that monetary policy has in the various regions of the euro area.

¹⁸ See Rodríguez-Fuentes, C.J. and Dow, S.C., "EMU and the Regional Impact of Monetary Policy", *Regional Studies*, Vol. 37(9), 2003, pp. 969-980.