B FINANCING OBSTACLES FACED BY EURO AREA SMALL AND MEDIUM-SIZED ENTERPRISES DURING THE FINANCIAL CRISIS

During the recent financial crisis, euro area firms, and especially small and medium-sized enterprises (SMEs), reported severe problems gaining access to finance. Using new survey data for a sample of more than 5,000 firms in the euro area, this special feature presents the results as a means of tracking the financing obstacles faced by non-financial corporations, as well as a structural analysis of this issue during the recent crisis. After disentangling the impact of various factors, it is shown that firm age and size are key determinants of whether a company experiences problems accessing financing. As SMEs are often unable to switch from bank credit to other sources of finance, experiencing major financing obstacles can be a considerable challenge and can endanger economic growth. Looking forward, expanding access to finance while ensuring financial sector stability through responsible practices and an appropriate evaluation of risks appears essential for a sustained economic recovery.

INTRODUCTION

Access to finance is a crucial factor enabling firms – especially SMEs – to maintain their day-to-day business as well as to achieve long-term growth and investment goals. With generally limited direct access to capital markets, many euro area firms rely heavily on the banking sector for credit. A well-functioning banking sector can play an important role in channelling resources to the best firms and investment projects. However, experiencing major financing obstacles can be a considerable challenge for enterprises, which in turn can increase the credit risks stemming from the corporate sector and also negatively affect productivity in the economy. Indeed, the extensive literature on the growth of firms has increasingly focused on the effects of financing constraints. The literature has clearly identified a negative impact on growth – highlighting the macro-financial feedback effects which can result in a crisis.[1]

During the financial crisis, sources of firm financing became scarcer and the availability of financing instruments generally deteriorated. SMEs are generally more prone to experiencing difficulties in accessing bank credit and, more broadly, external finance, with the main reason being linked to at least three specificities.[2] First, firm size may affect the quality and quantity of information available on an investment project and the quality of collateral, as well as the firm's relationship with capital markets and banks. Small firms are often believed to be more opaque and to have a higher risk of failure than large firms. Second, small firms are often young and have not had the time to build up a track record and reputation. Third, SMEs do not normally issue traded securities that are continuously priced in public markets, thus providing the market with information. Hence, from the banks' perspective (i.e. the supply side), the costs involved in assessing and setting appropriate premia for risk and the relatively high monitoring costs may discourage them from providing funds to smaller firms.

This special feature assesses financial constraints based on direct self-reporting by firms and their perception of financing obstacles. The analysis uses data from a new firm-level survey based on a sample of non-financial corporations in the euro area: the ECB and European Commission survey on the access to finance of small and medium-sized enterprises (SAFE).[3] A first investigation of

1 See M. Ayyagari, A. Demirgüç-Kunt and V. Maksimovic, "How Important Are Financing Constraints? The Role of Finance in the Business Environment", *World Bank Economic Review*, Vol. 22, No 3, 2008. In the euro area, SMEs contribute to more than 60% of total value added and represent 70% of employment.

2 For a review of the literature on surveys, see the paper by the Task Force of the Monetary Policy Committee of the European System of Central Banks entitled "Corporate finance in the euro area", *ECB Occasional Paper Series*, No 63, June 2007.

3 More information regarding the survey as well as the results of the individual waves can be found on the ECB's website at http://www.ecb.europa.eu in the "Statistics" section under "Monetary and financial statistics"/"Surveys"/"Access to finance of SMEs". In the survey, SMEs are defined as firms with less than 250 employees. For details about the econometric analysis of the survey, see A. Ferrando and N. Griesshaber, "Financing obstacles among euro area firms: who suffers the most?", *ECB Working Paper Series*, No 1293, February 2011 and C. Artola and V. Genre, "Euro area SMEs under financial constraints: belief or reality?", *ECB Working Paper Series*, forthcoming.

this new data focused on confirming whether or not SMEs were indeed more prone to experiencing difficulties in accessing finance. This complements the large body of literature investigating the existence and determinants of financing constraints for firms – including both survey and balance sheet-based analyses.[4]

SURVEY ON THE ACCESS TO FINANCE OF SMALL AND MEDIUM-SIZED ENTERPRISES (SAFE)

The SAFE survey has been carried out four times between the summer of 2009 and March 2011. The survey contains firm-level information mainly related to major structural characteristics (size, sector, firm autonomy, turnover, firm age and ownership) as well as to firms' assessments of recent short-term developments regarding their financing needs and access to finance.

Compared with existing cross-country surveys within Europe (for instance the European Commission's Flash Eurobarometer), the SAFE survey displays two novel characteristics. First, the survey is carried out at a higher frequency (every six months). In addition, it contains a small set of large companies so that SMEs' perceptions of financing obstacles can be placed in a wider perspective. Indeed, by construction, the survey includes a large number of SMEs (around 90%) which are mostly independent firms not belonging to larger industrial groups. In terms of age, around half of the firms are more than ten years old.

Some important caveats should be recalled when using information derived from surveys. First, surveys might be affected by self-reporting biases, i.e. firms might claim to be financially constrained even if they are not. Second, one characteristic of the SAFE survey is that all four waves were carried out during exceptional times of deep financial turmoil and in the middle of an economic recession followed by a mild recovery. This increases the risk that firms' responses may prevalently reflect a general deterioration of credit conditions in the economy. For these reasons, two different measures of financing obstacles are considered: one based on the perceptions of firms and the other based on their actual experiences in seeking external finance and applying for a loan.[5]

Each surveyed firm is asked to identify the most pressing problem it is facing at a time of the SAFE survey.[6] It is therefore possible to identify a firm as being confronted with financing obstacles whenever it chooses "access to finance" as its most pressing problem. Since the beginning of 2009, the most pressing problem reported by euro area firms has been "finding customers", reported by nearly 30% of firms. In the 2009 survey, "access to finance" came second in the implicit ranking of issues, with 19% of firms considering it to be the most pressing problem in the second half of the year. In the last wave, this share decreased slightly to 16%.

One major drawback of focusing on this particular question is that respondents cannot signal more than one problem at a time and hence must implicitly rank the seriousness of the problems they face.[7] In other words, it

4 A major stream of the literature makes use of a priori classifications between financially constrained and unconstrained firms in order to check whether the sensitivity of investment, cash holdings or growth to cash flow is higher for constrained than for unconstrained firms. For instance, it is expected that small and young firms face more binding financing obstacles owing to the more severe information asymmetries in the context of their creditworthiness analysis (see M. Devereux and F. Schiantarelli, "Investment, Financial Factors, and Cash Flow: Evidence from U.K. Panel Data", in R.G. Hubbard (ed.), *Asymmetric Information, Corporate Finance and Investment*, University of Chicago Press, Chicago, 1990; S. Gilchrist and C. Himmelberg, "Evidence on the role of cash flow for investment", *Journal of Monetary Economics,* No 36, Issue 3, December 1995). An investment grade rating for corporate bonds also reduces financing constraints as it signals that the firm has low-cost access to capital markets (see T.M. Whited and G. Wu, "Financial Constraints Risk", *Review of Financial Studies*, Vol. 19, Issue 2, 2006).

5 Furthermore, comparisons with the results obtained using survey data collected well before the onset of the economic crisis in 2007 highlight the more structural elements of the relationship between financing obstacles and their determinants.

6 Each respondent is given a choice of seven alternatives: finding customers, competition, access to finance, costs of production (including labour costs), availability of skilled staff, regulation and other reasons.

7 It is important to note that the wording of this question in SAFE is different from the wording of similar questions in other surveys (such as the World Business Environment Survey, WBES), where firms are typically asked to rank a given problem on a certain scale (e.g. from 4, representing a major obstacle, to 1, no obstacle, see T. Beck, A. Demirgüç-Kunt, L. Laeven and V. Maksimovic, "The determinants of financing obstacles", *Journal of International Money and Finance,* No 25, 2006).

is not possible to observe the actual levels of financing obstacles within a firm where "access to finance" may well be the second or third most pressing problem. The survey results may thus not fully take into account the existence of firms that consider "access to finance" as a pressing (albeit not the most pressing) problem, thus potentially underestimating the overall problems surrounding access to finance. It can, however, be assumed that a firm's choice will reflect a (very) serious issue considered by the respondent to be the most pressing problem. But the reply may of course only be based on the respondent's general perception and not a priori its actual experience.

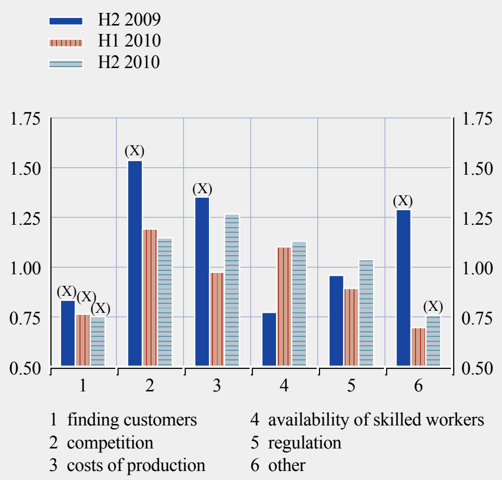
PERCEIVED AND ACTUAL FINANCING OBSTACLES

By conducting a multinomial logit regression using the categorical variables on the most pressing problem as independent variables, it is possible to calculate the probability of SMEs choosing "access to finance" as the most pressing problem in the survey versus other issues, all other variables, being constant. For example, in 2009 SMEs had a significantly higher probability than large firms of choosing "access to finance" over problems of competition (1.5 times higher), cost of production or finding customers (Chart B.1). At the same time, there was little or no difference between the responses of SMEs and large firms with respect to regulation and the availability of skilled workers (the differences in the odd ratios were not statistically significant). In the third survey wave, differences between large and smaller firms no longer appeared significant, except for finding customers. In the last survey wave, SMEs tended to choose "access to finance" more often than "other problems" than large firms.

An alternative way to identify firms facing financing constraints is their actual experience in applying for a loan. Indeed, respondents to the SAFE survey are asked whether or not they have applied for a bank loan and whether they were successful in obtaining one. Based on this information, Chart B.2 shows that about 18% of SMEs experienced some kind of constraint on bank loans in the second half of 2009, down to

Chart B.1 Probability that euro area SMEs report "access to finance" as the most pressing problem with respect to other problems, relative to large firms

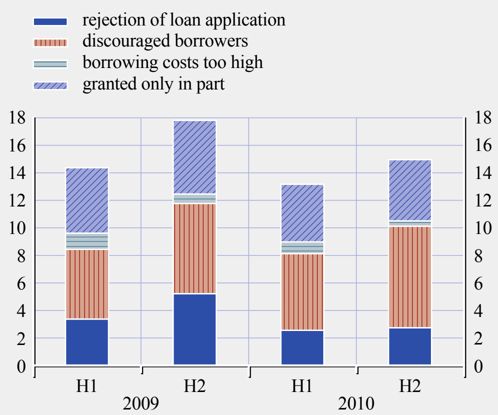
(ratio)



Sources: EU-ECB survey on access to finance and ECB calculations.
Notes: (X) indicates that the variable is statistically significant at 10%. Odd ratios based on multinomial logit regressions where the dependent variables are the different types of potential obstacles and problems captured in the survey. The odd ratios are calculated with respect to large firms and with other determinants (age, ownership, country and sector) held constant.

Chart B.2 Actual constraints on bank loans experienced by euro area SMEs

(percentage of total)



Source: EU-ECB survey on access to finance.
Notes: The indicator is defined as the percentage of respondent SMEs who did not apply for a loan for fear of rejection; applied for a loan but saw their application rejected; had to refuse the loan because the cost was too high; or obtained less than the sum applied for.

15% according to the last survey wave. Large firms reported lower but unchanged percentages at around 12%, broadly stable between the second half of 2009 and that of 2010.

DETERMINANTS OF FINANCING OBSTACLES

Using the information on firm characteristics derived from the SAFE survey (size, age, the sector of economic activity and type of ownership), a set of logistic regressions was run where the dependent variable was the indicator of financial obstacles described above. The results enable two different types of heterogeneity to be distinguished: across firms and across countries.

Heterogeneity across firms

Firm size, age and location (by country) appear to be the key determinants of whether a company experiences problems accessing external finance. As there is a high degree of correlation between age, ownership and firm size (i.e. the smaller the firm, the more likely it is to be younger and a one-person or family-owned business), it is important to unravel the various interactions between these variables. To do so, additional regressions were run, including interaction terms, and the marginal effects of each determinant were computed. The results show that small or, more significantly, young firms are more likely to be confronted with financing obstacles (see Charts B.3 and B.4).

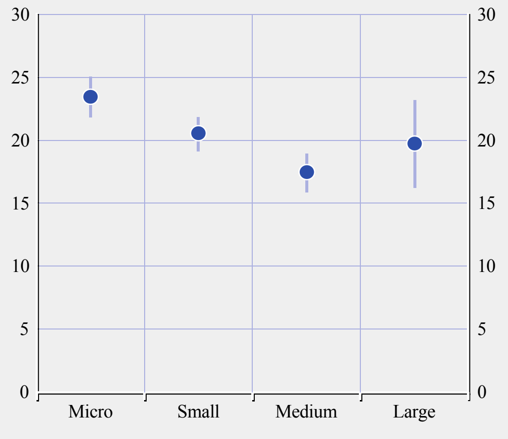
At the same time, the analysis shows that sectoral differences across firms are not particularly relevant in explaining the presence of financing obstacles.[8]

As discussed above, a non-negligible proportion of firms encounter financing constraints, but do not report access to finance as their main, most pressing, problem. In order to enrich the

8 This finding is in line with Canton, Grilo, Monteagudo and van der Zwan, where the sector of activity does not seem to play an important role for the EU10 sample (E. Canton, L. Grilo, J. Monteagudo and P. van der Zwan, "Investigating the perceptions of credit constraints in the European Union", ERS 2010, No 1). However, by exploiting information derived from the WBES for five major euro area countries (Germany, Spain, France, Italy and Portugal), Coluzzi, Ferrando and Martinez-Carrascal found that firms in the manufacturing and construction sectors faced more financing obstacles than those in the service sector. In this case, data referred to the beginning of 2000 (C. Coluzzi, A. Ferrando and C. Martinez-Carrascal, "Financing obstacles and growth: an analysis for euro area non-financial corporations", *ECB Working Paper Series*, No 997, January 2009).

Chart B.3 Predicted probability of euro area firms experiencing financing obstacles by firm size

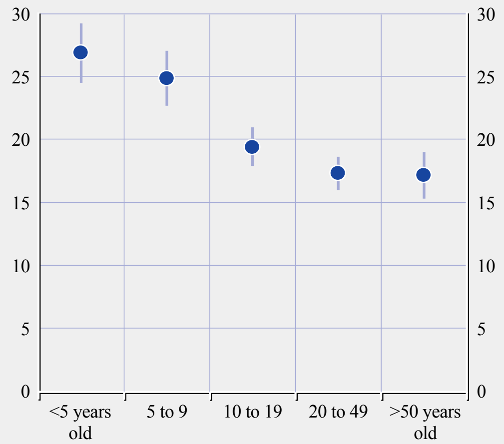
(includes the 95% confidence interval around the point estimate)



Source: EU-ECB survey on access to finance.
Notes: Results based on pooled data analysis of all four survey rounds. Micro firms are defined as firms with less than ten employees; small firms have between ten and 49 employees; medium firms have between 50 and 249 employees; and large firms more than 250 employees.

Chart B.4 Marginal effect of firm age on the predicted probability of euro area firms experiencing financing obstacles

(includes the 95% confidence interval around the point estimate)



Source: EU-ECB survey on access to finance.
Note: Results based on pooled data analysis of all four available survey rounds.

analysis, an additional indicator was constructed which combines perceived and experienced financing constraints. This categorical variable "financing obstacle" takes the value 0 if the firm neither perceived nor experienced any financing obstacles. The variable takes the value 1 if the responding firm perceived financing obstacles but did not actually experience any, and the value 2 where the firm actually experienced financing constraints, no matter what its perceptions were.

Based on the results of a multinomial probit regression, Chart B.5 depicts, by firm size, the predicted probabilities of: (i) experiencing financing constraints; (ii) only perceiving them; and (iii) not experiencing financing obstacles. The model prediction suggests that firm size has a clear impact on the likelihood of experiencing financing obstacles (which is not so evident for firms who only perceive financing obstacles). In particular, it seems that the smaller the firm, the more likely it is to face difficulties in obtaining external finance. A similar relationship emerges when looking at firm age. The older the firm, the less likely it is to have actually experienced financing problems.

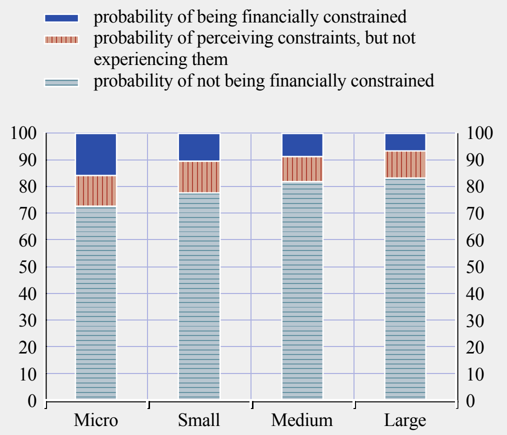
Heterogeneity across countries

In the analysis of the determinants of obstacles to obtaining finance through bank loans, the country dimension turned out to be particularly important. In 2009 and 2010 the economic and financial environment differed across countries and this might explain different levels of financial constraints faced by firms. In particular, the survey results highlighted very mixed developments in the corporate income situation across countries, with firms in Spain and, to a lesser extent, Italy reporting a deterioration in turnover and profits, while French and German firms recorded clearer improvements. In other words, a higher average probability of experiencing financial constraints in specific countries may not necessarily point to extraordinary supply restrictions, but can simply reflect a different assessment of credit risk by banks in those countries. Although the survey sample contains non-financial corporations from all euro area countries, this analysis only focuses on the four euro area countries for which there is a representative sample: Germany, Spain, France and Italy.

In all four countries, age remains a key determinant of whether a company experiences financing

Chart B.5 Predictions of euro area firms experiencing or perceiving financing constraints or not experiencing financing constraints, by firm size

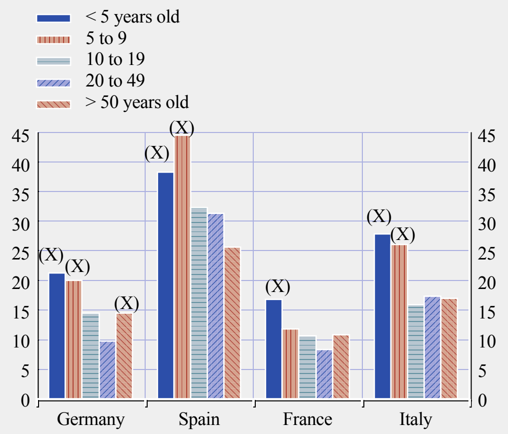
(percentages)



Source: EU-ECB survey on access to finance.
Notes: Results based on H2 2010 survey round. Results are similar for other available waves.

Chart B.6 Predicted probability of euro area firms experiencing financing constraints by firm age

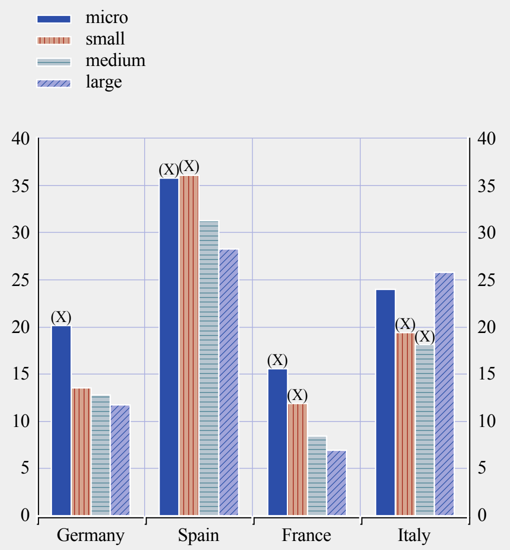
(percentages)



Source: EU-ECB survey on access to finance.
Notes: Each country estimation is run separately and based on a random-effect probit model run on pooled data of all available survey rounds. (X) indicates that the probability is significantly different from that for firms aged 50 and above (at the 10% level).

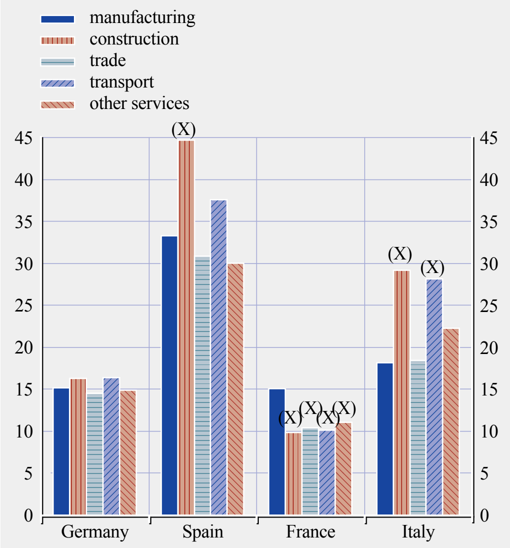
Chart B.7 Predicted probability of euro area firms experiencing financing constraints by firm size

(percentages)



Source: EU-ECB survey on access to finance.
Notes: Each country estimation is run separately and based on a random-effect probit model run on pooled data of all available survey rounds. (X) indicates that the probability is significantly different from that of large firms (at the 10% level).

Chart B.8 Predicted probability of euro area firms experiencing financing constraints: the role of sectoral activity



Source: EU-ECB survey on access to finance.
Notes: Each country estimation is run separately and based on a random-effect probit model run on pooled data of all available survey rounds. (X) indicates that the probability is significantly different from that of manufacturing (at the 10% level).

constraints. Younger firms (and especially those less than five years old) have a significantly higher likelihood of experiencing difficulties in accessing finance (see Chart B.6). The "reputation" or "track record" effect, often found in previous surveys, is quite widespread across countries.

Turning to ownership, the fact that a business is a one-person or family business appears to significantly hamper access to finance in Spain.

The probability of experiencing financing obstacles is also linked to firm size. However, the significance of the size effect varies across countries (see Chart B.7). In France and Spain, small and micro firms have a substantially higher probability of experiencing financing obstacles than medium-sized and large companies. In Italy, the predicted probability of being financially constrained turns out to be significantly lower for small and medium-sized firms than for large firms (although for the latter the coefficient is not significant).

Finally, differences can be observed regarding the relevance of the sector of economic activity for whether a firm will experience financing constraints. Testing for the overall significance of industrial sectors in the estimations by country, it is found that the business sector does not explain the existence of financing obstacles at all in Germany, and only marginally in France, but is a very relevant factor in both Italy and Spain. In particular, construction and real estate firms in Spain and, to a lesser extent, in Italy faced a much higher probability of experiencing financing obstacles than any other firms (45% in Spain and 29% in Italy; see Chart B.8). Given construction and real estate conjunctural developments, notably in Spain since 2007, this result does not come as a surprise. Also, French manufacturing firms have a relatively higher risk of experiencing financing obstacles compared with firms operating in other sectors of the French economy, which is not observed in any other country.

CONCLUDING REMARKS

The most recent EU-ECB survey on access to finance confirmed that financial obstacles were one of the most cited factors impeding business dynamics. A first investigation using this data also showed that while the general sentiment of heightened financial obstacles was broadly based across firms during the recent crisis, the firms that actually experienced financial constraints tended to be small and young, confirming the fact that SMEs were indeed hit harder when banks' credit standards tightened.[9]

This analysis is not a test of the lending efficiency of financial institutions in financing SMEs as the quality of potential borrowers is not measured by the survey. However, the findings described in this special feature seem to point to discriminatory behaviour by banks with regard to the granting of loans to smaller companies. Since SMEs are often unable to switch from bank credit to other sources of finance, experiencing major financing obstacles can be a considerable challenge for them compared with larger firms. In view of SMEs' valuable contribution to employment and local development, prolonged credit rationing, which goes beyond justified credit risk considerations, could endanger economic growth.

With the advent of a new regulatory framework for the banking system, expanding access to finance while ensuring financial sector stability through responsible practices and an appropriate evaluation of risks is clearly an essential prerequisite to a sustained economic recovery.

9 According to latest results of the Bank Lending Survey, the recent tightening of credit standards for SMEs was largely driven by risk-related factors, i.e. factors related to the overall deterioration of the economic outlook rather than by supply-side constraints (see ECB, "Determinants of bank lending standards and the impact of the financial turmoil", *Financial Stability Review*, June 2009). Moreover, looking at the ECB's MFI (monetary financial institution) interest rate statistics, the interest rates charged on small-sized loans to non-financial corporations (as a proxy of loans to SMEs) have increased more than those applied to large-sized loans (see the box entitled "Have euro area banks been more discriminating against smaller firms in recent years?", in ECB, *Financial Stability Review*, December 2010).