Measuring the access to finance of small and medium-sized enterprises across the euro area through a flexible survey[1]

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Motivating a survey on the access to finance of enterprises

In the euro area, small and medium-sized firms (SMEs) play an important economic role, both because of the large number of SMEs and their role as employers.[2] According to the European Commission, 99.8% of all companies in Europe are SMEs. In addition, nearly 70% of all employees work in SMEs.

With respect to monetary policy, it is likely that the transmission mechanism is different for SMEs compared with large companies given that SMEs are generally more bank-dependent. Compared with large companies, only few SMEs issue debt securities or are listed on a stock exchange. Reporting obligations and credit demand that is often too small to justify securities issuance are cited as common reasons for the low issuance activity of SMEs. As a result of their higher bank-dependency, SMEs are generally likely to be more constrained in their access to capital. A regular analysis of the implications of monetary policy for SMEs could also be seen in a wider context of the desire of a breakdown of the monetary transmission into sectors (e.g. households, enterprises). Disregarding likely sectoral and firm-size differences in the monetary policy transmission could be costly in terms of economic growth and employment developments. Related to this, in particular in periods when credit conditions become tighter, as for instance in 2002/2003, and most acutely in current times, there has been generally a strong demand for more information on the financing conditions of SMEs.

Against this background, regular and relatively timely information on the financing and the financial situation of SMEs is important for the European Central Bank (ECB) to assess the specific implications of monetary policy decisions for SMEs, with timeliness that ensures the information is still relevant for monetary policy purposes. In addition to taking monetary policy decisions, regular and timely information on SMEs would also be important for informing and communicating decisions to the general public. In particular, a detailed set of information would also allow to explain monetary policy decisions (for instance in the context of credit constraints).

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[1] The views expressed in this document are the authors' only. This document benefited from earlier material prepared by Petra Köhler-Ulbrich and Carlos Sánchez Muñoz. All errors are, of course, entirely our own.

[2] The definition of SMEs follows the one used by the European Commission, as used in the context of European statistics, i.e. firms with less than 250 employees. According to the corresponding Recommendation 2003/361/EC, other criteria are required to fully qualify a firm as an SME, namely either turnover below €50 million or total assets below €43 million. Accounts from linked and partner enterprises are to be consolidated to determine whether a firm is an SME or not.

Available information on euro area SMEs, and in particular on their financial situation, is scarce and hardly accessible within a policy-relevant timeliness. For instance, public information on SMEs' financial statements is, (if at all) only available with a long time lag of around one to two years. This is related to the fact that accounting information on SMEs, of which many are unlisted firms, is generally available in less detail and with a longer time lag compared with listed firms. In addition, other available information on SMEs is often rather of a structural nature, which is less relevant for a regular monitoring with respect to the analysis and assessment of the monetary policy stance and its implications for SMEs in the euro area. Moreover, the available national information on euro area SMEs is not harmonised across countries so that it is difficult to use it for a consistent analysis at the euro area level.

By contrast, for large non-financial corporations in the euro area, information is available from different sources. For instance, relatively timely information is available from microeconomic data on listed firms, in the form of quarterly reporting.

In this context, the example of the European Commission survey on the access to finance in the European Union in 2005 was a welcome rarity. The survey was carried out through the framework of the Eurobarometer surveys[3], which allowed a fast, responsive and homogeneous implementation, and focused on SMEs and their financing structure and constraints. When the European Commission (EC) considered implementing a second wave of this survey, it seemed logical that the two institutions, EC and ECB, would join forces and cooperate on one single survey, given their common interests. The first wave of the ECB/EC survey on the access to finance of SMEs (SAFE) was carried out in summer 2009.

This paper describes this survey, and is organised as follows. The first section provides an overall description of the design of the ECB/EC joint survey on the access to finance of SMEs, touching among others on the links with comparable surveys, but covering as well the questionnaire, the sample composition, and other elements of the *input side* are analysed. In the second section, we consider the flexibility afforded by the *output side* of the survey, i.e. tables, breakdowns, reporting and analysis.

I. The SAFE, elements of design

Three main elements guided the design of the survey.[4] The survey needed to be carried out in a varying combination of countries, since the analysis of the EC covers the European Union and some neighbouring countries, whereas the ECB focuses on euro area countries. The survey needed to provide quick results, since they would feed into the monetary policy of the ECB, and timeliness was of the essence. Finally, the survey needed to complement existing statistical sources.

In addition to these three main elements, which are discussed below, the survey was designed to be flexible, in particular since it was identified that the needs of the ECB and the EC may change over time, first with the experience learned, and second to better track any change in the economic environment or in the policy-relevant dimensions of the survey.

The flexible geometry of the design of the SAFE

The first main dimension of the flexibility of the SAFE is the composition of the sample and the interplay between the sample, the questionnaire, and the frequency of the survey. The SAFE covers both the needs of the EC every two years (for structural analysis), and of the ECB every six months. The set of questions is extended every two years, in order to include the more structural questions of the EC, and the countries coverage also change every two years. Figure 1 below shows the structure of the questionnaire for both the biennial and the bi-annual waves.

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[3] More information on Eurobarometer surveys can be found on the website: http://ec.europa.eu/public_opinion/index_en.htm

[4] The description below covers mainly the ECB elements of the survey, but is in general applicable to the EC elements, with exceptions on the frequency, the sample design, and the production process.

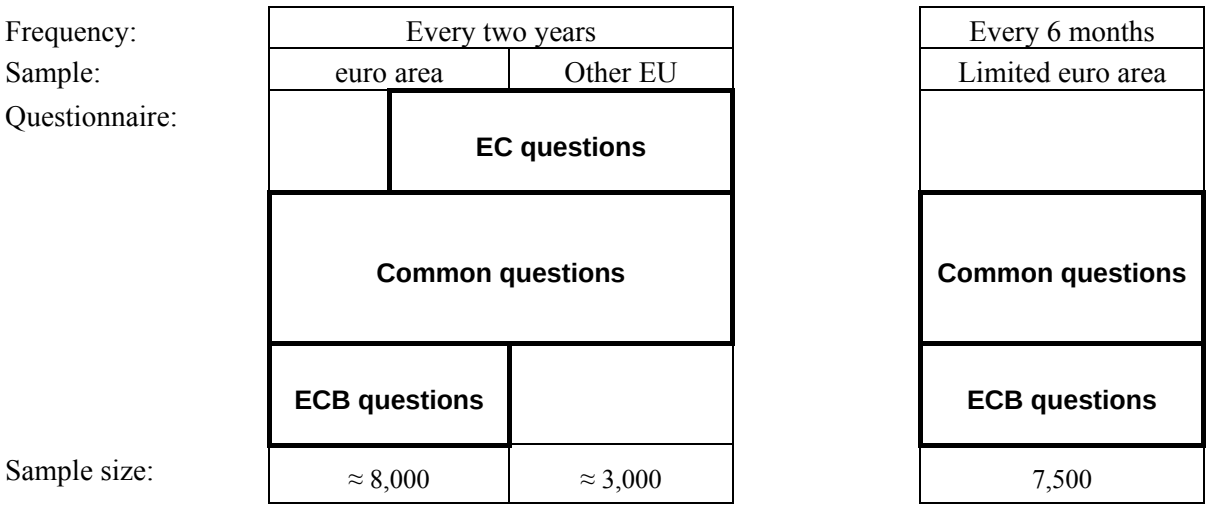


Figure 1: sample and questionnaire structure of the SAFE over the two different waves of the survey

The high frequency component of the survey is the bi-annual waves, covering only the euro area. These waves received particular attention in the selection of the countries in the sample. The main focus of the SAFE, when it was designed, was to offer a robust assessment of access to finance developments in the euro area as a whole. For this purpose, a proportional allocation of the sample is the most cost-effective solution, and, given the overall size of the sample, it has the added advantage that the larger countries in the euro area have a sufficiently sizeable sample that allows country analysis for these countries (viz. Germany, Spain, France and Italy). Other countries, whose sample sizes are not sufficient to provide reliable country estimates, would be grouped together for analysis purposes. An initial sample size of 5,300 firms was a compromise between total cost and sufficient precision at the euro area and large country level.

As the smallest member states contribute very little to the euro area totals, the proportional allocation would have led to very few firms selected in these countries. The seven current smallest countries of the euro area (Estonia, Cyprus, Luxembourg, Malta, Slovenia, and Slovakia) represent approximately 3% of the euro area total, in terms of number of employees, number of SMEs or total turnover.[5] Therefore, in order to reduce statistical burden and costs, it was decided not to run the survey in every euro area country, but to only include these countries every two years in the waves run with the European Commission.

The effect of neglecting the smallest euro area member states was measured to be very small, according to the results of the first wave, which included all euro area member states. Over all the questions in the survey, and for euro area totals, the average absolute impact of neglecting the smallest member states is of 0.06 percentage point, leading to a change in the published percentage of an indicator (rounded to the nearest integer) in only 2.1% of the cases. This effect is much smaller than the precision of the survey.

During 2009 and 2010, developments in individual euro area countries led to an increasing interest in individual countries, which the sample was not able to accommodate. In Belgium, Ireland, Greece, Netherlands, Austria, Portugal and Finland, the sample size was only of 100 to 250 firms, making policy recommendations delicate because of the limited precision. Furthermore, several questions are filtered (e.g. only those who apply for a bank loan are asked about the conditions of these bank loans), limiting even more the precision. The flexibility of the sample design was put to the test by increasing the sample size in these countries, in order to allow more reliable conclusions; 2,200 firms were added to the sample in the fourth wave. This same flexibility would allow an extension of the sample to more than the 11 largest euro area countries, but as well to the non-euro area EU countries.

[5] When the first designs of the SAFE were drawn, in 2008, the euro area had only 15 members. Slovakia and Estonia joined in 2009 and 2011 respectively.

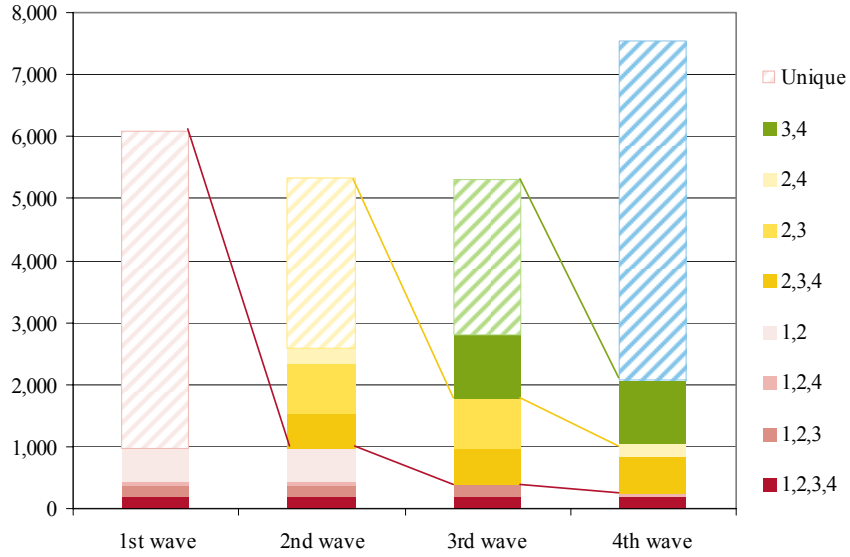
In addition to the country dimension, the allocation of the sample by size class was much discussed. The first decision was to include large firms in the sample, to be able to contrast developments of SMEs and large firms; as described above, there are reasons to expect that the access to finance of these two types of firms might differ, and the difference might itself change over the business cycle.

Moreover, one of the difficulties in allocating the sample across size categories is the extremely unequal distribution of firms by size in the economy. According to official statistics, 92% of firms in the euro area are micro firms (with 1 to 9 employees), 7% are small firms (10 to 49 employees), 1% are medium-sized firms (50 to 249 employees) and 0.2% are large firms. However, in terms of economic weight, as measured by the number of persons employed, micro firms represent 31%, small firms 22%, medium-sized firms 16% and large firms 30% of all firms. A compromise between these two alternative views of the same population of firms – sheer numbers or economic volume – was reached by requiring the same precision in the three SME size classes (micro, small, and medium-sized, with 30% of the sample each), which are the main focus of the SAFE, while lower precision was required for the comparison group of large firms (10% of the sample). This is also required since there is a smaller number of firms available in the sampling universe of large firms.

The sample is mostly drawn from the Duns and Bradstreet database, with a sample stratified by country and by size of firms (in four categories) as described above. Firms in agriculture and public administration are excluded from the sample, as well as non-for-profit companies. In a few countries where the coverage of this database was not deemed sufficient, alternative sources were used. Overall, response rates are low, as is to be expected with a non-mandatory, cold-call, telephone survey. For this reason, a panel component was introduced into the SAFE.

Firms willing to continue participating in the survey are re-interviewed in subsequent waves. Figure 1 shows the composition of the four waves of the survey, with colour-coding to show the participation of firms in several waves. 80% of firms are willing to continue participating, but only approximately half of them can be successfully contacted for the next wave, still significantly improving the response rate. Furthermore, the panel component in the SAFE allows to better estimate changes from one wave to the other, as the inclusion of the same firms in two waves reduces the sampling randomness in comparing the indicator over time. It is also useful in tracking the effect of questionnaire changes (see infra), as the responses to a modified question can be compared before and after the change. One possible concern is the fact that panel firms are not representative of all firms. To partially address this, during the sampling stage, firms dropping out of the panel are replaced by firms in the same country and size class. Comparison of the panel firms with the others has not revealed any systematic difference between the two.

Figure 1: panel structure



Note: The numbers in the legend refer to the waves where the firm is present. Color tone indicate the first wave of each firm (red for the first wave, yellow for the second, green for the third, and blue for the fourth). Hashed areas show firms who have not yet been re-interviewed.

The SAFE production process is optimized to provide timely results

The survey mode of the SAFE was carefully discussed, and in the end telephone interviews were selected for the SAFE. The alternatives, namely internet or paper-based, were not seen as successfully encouraging participation in the survey. Telephone interviews allow a concentrated fieldwork period and provide interviewers with some flexibility in the course of the interview. The selection of the respondent inside the firm is a crucial aspect of the success of the survey, as the main person responsible for the finances of the firm needs to be interviewed, and experienced interviewers are best suited for this task.

Fieldwork takes approximately four weeks, to conduct 7,500 interviews in 11 countries, and is conducted by one single professional social survey company, operating as a network from one location. This allows national expertise for the conduct of the fieldwork in each country, as well as network management experience from the central nexus. The breadth of the survey company allows additional countries to be added to the fieldwork, if need be, with short turnaround time.

Finally, a central element of the flexibility is the treatment of all data in-house at the ECB, from data validation to publication. Production time is relatively short – the report is published within one month after the end of fieldwork, but internal data validation has been streamlined to less than a week, including all statistical derived products. Core to the internal production system is a metadata management system, which allows mapping of the input side (questions, variables, responses) to the output side (tables, charts, microdata).

The SAFE needs to be comparable with other data sources (business surveys, official macroeconomic statistics)

The design of the SAFE allows for a comparison with other statistics so that analysis of survey results in any given vintage can be enriched with additional relevant aspects emanating from other sources in three key ways.

First, the economic conditions of euro area SMEs can be put into wider perspective and compared with other business surveys conducted in the European Union, in particular the Business Surveys coordinated by the European Commission (DG ECFIN), from which the SAFE borrows some key elements: the structure of the questions (most pressing factor question, balance of opinion on the changes in opinions or key economic

variables of firms), or outside, for example in countries like the U.S. (with several comparable indexes, such as PMI) or Japan (with TANKAN and its SME sub-sample). These surveys are monthly or quarterly.

Second, other survey data for the euro area can be used to augment and enrich the information from the SAFE; in particular the perception on the access to different sources of financing expressed by SMEs can be compared with the loan developments reported by banks. A good example is the Eurosystem's quarterly Bank Lending Survey (BLS)[6] which shares certain topical content with the SAFE and covers development of credit standards for approving loans, credit terms and conditions and credit demand, though, from the banks' point of view. Both surveys have common features, although the definitions and concepts are not always directly comparable. Importantly, in the BLS questions on the loans to enterprises differentiate between SMEs and large enterprises, but the classification is based on net turnover, rather than the number of employees as in the SAFE, reflecting the different focus of both surveys. These differences notwithstanding, the SAFE results to the question on the availability of bank loans, as perceived by firms, can be compared with the changes in the credit standards applied to the approval of loans or credit lines reported by participating banks. In addition, the BLS complements this information with the factors contributing to tightening standards, differentiating between the banking sector side (bank's capital or liquidity position, access to market financing, pressure from competition) and perception of risk (general economic activity, industry or firm-specific outlook, risk on collateral demanded). Further comparison can be performed with respect to the banks' perception on the use of alternative financing (internal financing, loans from other banks, loans from non-banks, issuance of debt securities or equity) and the data reported by the firms themselves. Both SAFE and BLS include also section on the changes in the bank's terms and conditions such as interest and non-interest charges, available size and maturity of loan, collateral requirements.

Third, the SAFE results can be enriched by a parallel review of related official quantitative 'hard data' releases. The statistics on the Monetary Financial Institutions (MFI) interest rates[7] can serve as a benchmark. In this dataset, the banks' interest rates and volumes on new loans applied to the non-financial corporations are broken down by the size of the loan with the threshold of EUR 1 million. These figures can be contrasted with the perceptions reported by SMEs and large firms on the price terms and availability of loans. Starting in June 2011, a new threshold of EUR 250,000 will be available, which will offer more information on loans to small firms.

The inclusion of the above-mentioned complementary data sources into the analysis of the SAFE will be interesting to investigate, in particular when more data become available and the stability of the results can be tested on longer time series.

The questionnaire of the SAFE, part and parcel of the flexibility of the survey

In general, the survey format enables quick modifications and expansion of the collected information, which is especially important in rapidly changing economic environment. With this respect, surveys are much more flexible than other data collection methodologies which need to be set up and amended through legal regulation.

In the case of the SAFE, the questionnaire can be adjusted swiftly from one wave to the other and so far, the survey has benefited from this flexibility, simultaneously maintaining the continuity of the survey questionnaire over time. Nevertheless, over the course of the survey so far, the SAFE has benefited from this flexibility. For instance, in the third wave a new category of bank-based financing "*bank overdrafts, credit line, or credit card overdraft*" was added to most questions after the results of the first two waves indicated that together with the bank loans it is one of the most common sources of external financing for the SMEs.

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[6] More information on the Bank Lending Survey and the results are published on the ECB website http://www.ecb.int/stats/money/surveys/lend/html/index.en.html

[7] More information on the MFI interest rates (MIR) statistics can be found on the ECB website http://www.ecb.int/stats/money/interest/interest/html/index.en.html

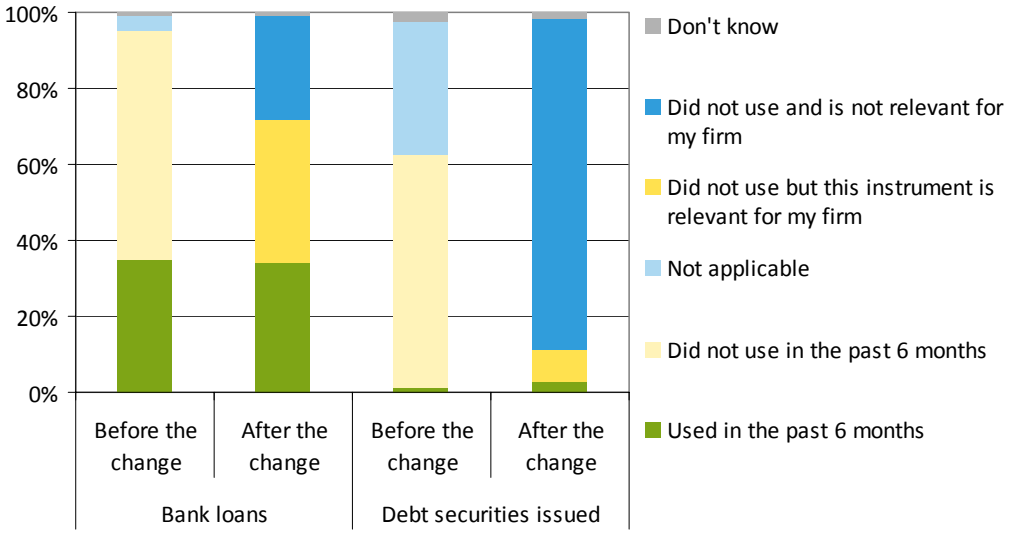
Other parts of the questionnaire have been made more specific when it has proved necessary for better understanding of the relevant underlying phenomena. For example, the question on the outcome of the application for particular sources of financing was modified so that "*applied but only got part of it*" was split into "*applied and got most of it*" and "*applied but only got a limited part of it*"; the rationale for this change being that the impact on the firm is much more limited if a significant part of the financing is available. In addition, the high number of answers "*did not use*" to the question on the usage of financing instrument led to a change of the wording from "*not applicable*" to "*not relevant for the financing for the firm*". At the same time, the category "*did not use in the past 6 months*" was relabelled "*did not use in the past 6 months but this instrument is relevant for my firm*". Overall, the sum of the "*did not use*" and "*not applicable*" categories appears to stay constant across the two waves, validating, at least in part, the change in the questionnaire (figure 2).

Sometimes, however, modifications to the survey might imply difficulties with comparison through time and they should only be introduced when the initial question did not succeed. In the SAFE, this was the case with the "Internal funds" category, as a source of financing of firms. In the third wave, when the category "*internal funds*" was renamed to "*retained earnings and sale of assets*" to better track the source of these internal funds, usage of this finance category dropped by half. In such cases, to avoid drawing incorrect conclusions, the break in the time series has been appropriately flagged to the users (see below).

II. The flexibility of output reporting from the SAFE survey for tailoring to user needs

The survey structure allows also for flexibility with respect to presenting the results. Currently, the SAFE data are disseminated in a report and as spreadsheet tables, time series and microdata, which allows tailoring the output to the end-user needs and type of analysis. Each output can be easily customized and adapted.

Figure 2: Use of particular financing instruments, before and after a questionnaire change



Source: EC/ECB survey on the access to finance of SMEs, waves 2009H2 and 2010H1.

The most salient results of SAFE are published in a descriptive report complemented with charts (Figure 3).[8] It summarises the financial situation, financing needs and access to finance of SMEs in the euro area, compared with large firms, during the preceding six months. In addition, the results are evaluated with

[8] The data and reports can be downloaded from the ECB website: http://www.ecb.int/stats/money/surveys/sme/html/index.en.html

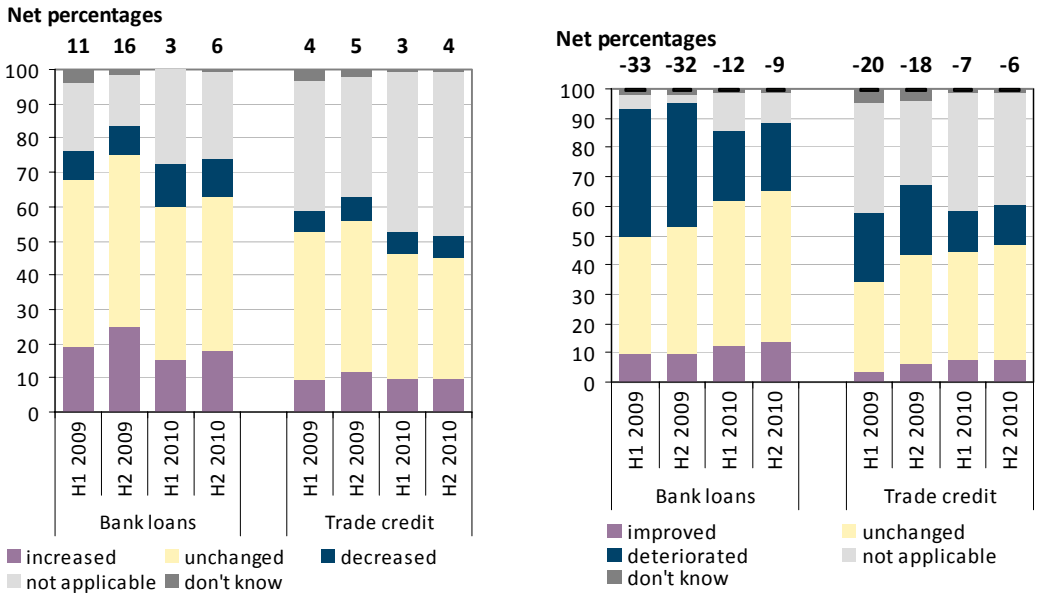
respect to the residency of the firm and latest development is compared with the situation in previous waves. The report includes also annexes: first one illustrates the general characteristics of the firms which participated in the survey and second explains the methodological issues like sample selection or weighting method. This publication is also the main input for policy makers on the results of the SAFE, but the publication also serves to inform journalists and experts.

More detailed information is available in tabulated Excel files which are published together with the report, separately for each wave. The tables contain rich set of breakdowns - weighted percentage of responses to each question broken down by firm size, sector and country. Additionally, the data are further split by age of the firm, type of ownership and financial autonomy.

To facilitate monitoring of the euro area firms over time, the SAFE results are also disseminated in the form of time series through the Statistical Data Warehouse of the ECB, which allows retrieving a chosen subset by using specific dimensions of a series e.g. characteristics of the firm, question, applied filter (including or excluding not applicable responses) or denomination (weighted and unweighted percentage of responses, unweighted number of responses).[9] These time series, once selected by the end user, can be easily updated.

The survey outcome can be also captured in the form of composite indicators constructed from the answers to the individual questions. Specifically, the first results of SAFE served to create an experimental measure showing the contributions of individual financing instruments i.e. bank loans, trade credit, equity, and debt securities, weighted by their actual use, to the overall external financing needs and availability. Another indicator represents the gap between financial needs and availability summarising demand and supply developments in a concise manner.

Figure 3: example charts from the report of the SAFE (4th wave) – change in external financing needs (left chart) and availability (right chart)



Source: EC/ECB survey on the access to finance of SMEs. Left chart: all SMEs; right chart: SMEs having applied for external financing.

Finally, a micro dataset, containing observation level data, is available internally to ESCB researchers.[10] This allows tracking different aspects of access to finance for a particular firm within a

[9] The SAFE time series are available in the Statistical Data Warehouse (SDW): http://sdw.ecb.europa.eu/browse.do?node=9138811

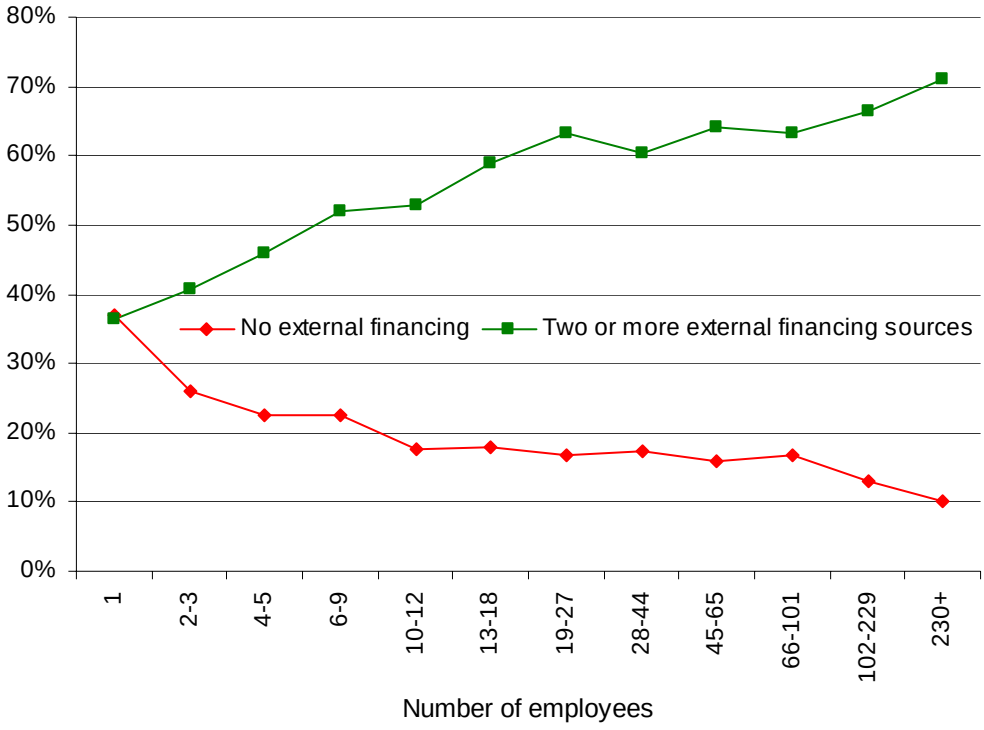
[10] For example of uses, see Ferrando and Griesshaber (2011) and Artola and Genre (2011).

specific wave and also the development over time thanks to the information on the panel participants. This dataset allows many kinds of statistical uses. It enables a distributional analysis when the available breakdowns by age and size seem to be too restrictive. Especially for the youngest and micro firms the more detailed data can bring extra insights where an additional employee or year in existence make a difference and increase chances of survival resulting also in easier access to external financing sources (Figure 4). For example, Figure 5 shows the box plot of the number of employees depending on the outcome of the application to a bank loan. Firms whose application was rejected are smaller than the firms who obtained most or even just part of what they had asked for. Such a visual display of complex information (distributional behaviour and access to finance) is slowly being explored, and is already quite promising at this early stage

Conclusion

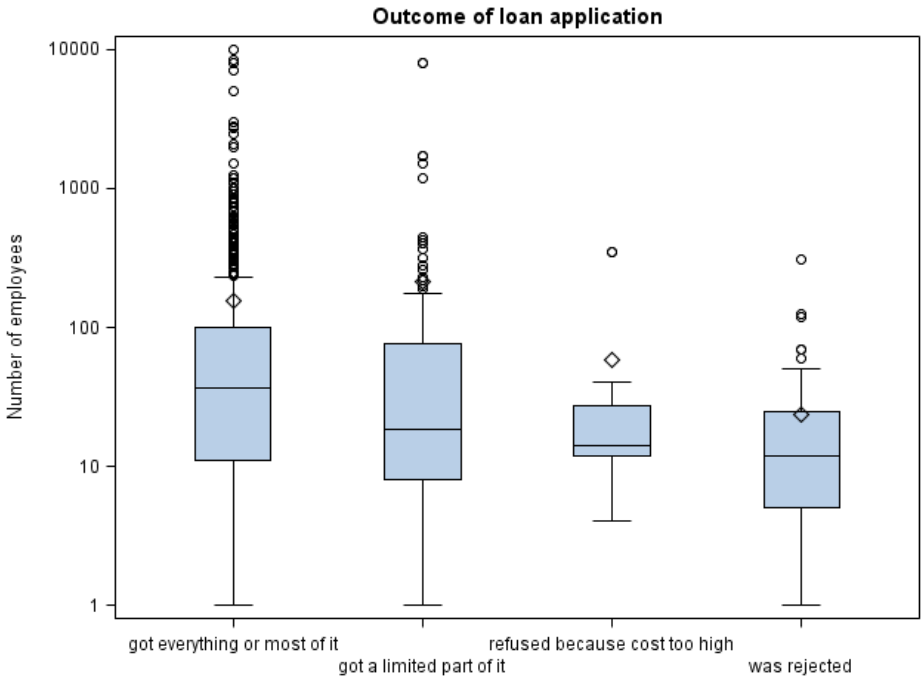
The EC/ECB survey on the access to finance of SMEs has been implemented to fill a gap in the availability of timely information on the financial situation of smaller firms in the euro area. Most elements in its design reveal a need for flexibility, be it in the sample design, the country coverage, the questionnaire, or the output from the survey, in the form of tables, reports, time series, or microdata. Although quite young, the survey has found its usefulness, and its flexibility will continue allowing it to adapt to monetary policy and analysis requests.

Figure 3: use of external financing by number of employees



Source: EC/ECB survey on the access to finance of SMEs. Wave 2010H2.

Figure 5: box plot of the distribution of number of employees, according to the outcome of the application for a bank loan



Source: EC/ECB survey on the access to finance of SMEs. Wave 2010H2.
Note: number of employees in log scale.

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RÉSUMÉ (ABSTRACT)

Small and medium-sized enterprises (SMEs) are of high relevance for the euro area economy. However, the available information is comparatively scarce. While there are timely data available on SMEs in the US and Japan, information on SMEs in the euro area and in particular on their financial situation is generally available only annually and with a substantial time lag. Moreover, it is often heterogeneous across euro area countries. If timely information is available on the financial situation of smaller firms, for example through country specific surveys, it is not easily comparable. This motivated the European Central Bank to set up a survey on access to finance across European countries, in cooperation the European Commission. The format chosen allows flexibility of sample design and questionnaire, with short implementation times and timely results. In particular, the survey mixes a six-month frequency over euro area countries with a biennial component over all European Union countries. The microdata allow results to be broken down in many different dimensions, and have contributed to the growth of a rich source of information to monitor euro area economic developments.