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# EVALUATING COSTS AND BENEFITS OF POLICY INTERVENTIONS TO FACILITATE SME ACCESS TO CREDIT: LESSONS FROM A LITERATURE REVIEW

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# EVALUATING COSTS AND BENEFITS OF POLICY INTERVENTIONS TO FACILITATE SME ACCESS TO CREDIT: LESSONS FROM A LITERATURE REVIEW[1]

[1] This report has been drafted pursuant to a suggestion made at the meeting of the Committee on Financial Markets in October 2015 to complement the synthesis of responses to the OECD/EC Survey on Evaluating Publicly Supported Financial Guarantee Programmes for SMEs by a survey of existing literature. The report has benefitted from comments made at a presentation on evaluating publicly supported financial guarantee programmes for SMEs at the OECD-ADBI Tokyo Roundtable on Capital Market and Financial Reform in Asia, Tokyo 22 to 23 March 2016.

## I Motivation

1. Small and medium-sized Enterprises (SMEs, henceforth) are considered the backbone of the economy; in most economies they represent the overwhelming share of companies in terms of numbers and typically account for well more than half of employment and somewhat less in terms of turnover and investment. They are also often considered as a key engine of technological innovation, productivity growth and employment creation.

2. SMEs are, however, not a homogeneous group of entities. Rather, they span a wide range of enterprise in terms of activities, structure and size, and in particular their outlook in terms of contribution to employment growth and technological innovation. A common aspect of SMEs is that they are relatively smaller than some other enterprises, where size can be measured based on headcount of staff, turnover or balance sheet size.[2]

3. SMEs tend to have access to several types of potential benefits, such as fewer requirements or reduced fees for administrative compliance and eligibility for support under national or regional business-support programmes targeted specifically at such firms. The most common support arrangement is a credit guarantee scheme (CGS), which typically provides a partial guarantee for a bank credit to an SME that is triggered in the event of debtor default. The remarkable proliferation of such CGS worldwide, many of which are publicly supported, testifies that a market failure regarding credit provision to SMEs has been perceived by policy makers and that it has been considered significant enough to justify public intervention. Also, in response to the effects of the global financial and economic crisis, CGS were used as a counter-cyclical policy tool; in fact, the scope of CGS activities were extended in most of the countries where they had existed. These measures helped overcoming the effects of the tightening of lending conditions in some countries and the thus implied undesirable effect on SMEs activities.

4. One of the common justifications for CGS activities is that they should bring benefits to the economy by supporting the potential of innovative firms, which would otherwise not obtain credit. Despite the widespread and intense use of this type of policy intervention, there are suggestions that market failures persist and that the economy's overall productivity is thus lower than it could have been. For example, the recent OECD Scoreboard "Financing SMEs and Entrepreneurship 2016", developed as part of the work of the OECD's Working Party on SMEs and Entrepreneurship (WPSMEE), concludes that the issue of SME access to finance "*has been climbing steadily up the policy agenda in recent years*". Moreover, it observes that while credit conditions for SMEs improved in the majority of countries covered in the report, they did not so for all SMEs: "*Nevertheless, small businesses, and particularly new and innovative ones, continue to face the consequences of market failures in accessing external financing.*" To the extent that one can identify that in particular (new and) innovative firms are continuing to face difficulties in access to external finance, the effectiveness of CGS could be questioned.

5. As is the case of any policy intervention, there are not only potential benefits but also costs associated with support measures targeted at SMEs. These include the possibility that so-called "zombie companies[3]" are kept alive, that the development of alternative forms of financing such as venture capital, crowdfunding, etc. is hindered and that substantial contingent fiscal liabilities are being created. Thus, to

[2] For example, in the European Union, an SME is defined according to EU Recommendation 2003/361 as having a headcount of less than 250 staff and either a turnover of less than EUR 50 million or a balance sheet total of less than EUR 43 million.

[3] The term "zombie companies" is used here to designate enterprises that are not financially viable without some form of external support such as from public authorities or creditors etc.

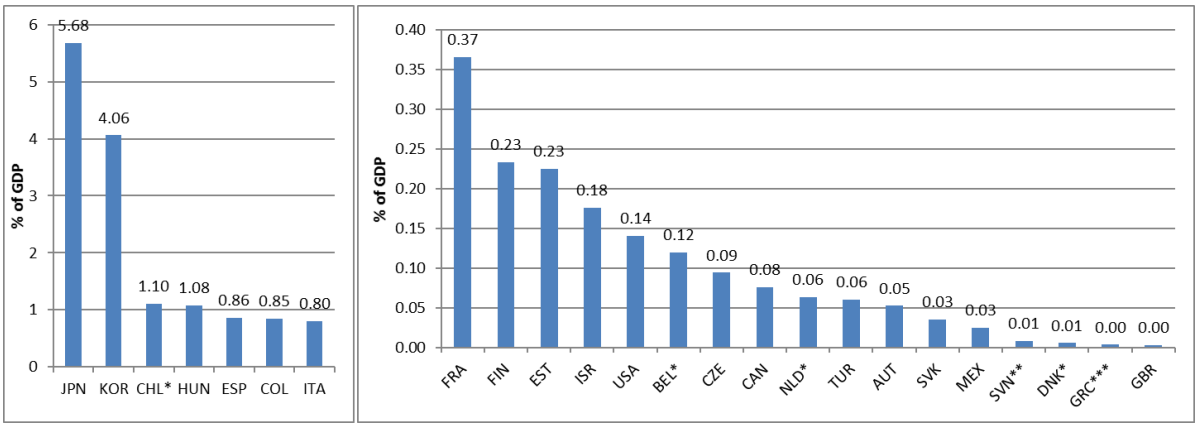
ensure that publicly supported guarantees function effectively, their costs and benefits should be assessed against the background of the aim of the scheme. Such an analysis allows one to evaluate the performance of the CGS, improve their designs so as to reinvigorate public support for SMEs.

6. At the October 2015 meeting of the OECD's Committee on Financial Markets (CMF), the Committee suggested that the Secretariat undertakes a review of the academic literature on the evaluation of the costs and benefits of CGS to complement the Committee's work on surveying national approaches to such evaluations. The European Commission Joint Research Centre expressed its interest in cooperating with the OECD on this topic and the present note is the result of this joint effort. The note starts, in its second section, with a conceptual discussion of aspects of costs and benefits of CGS to set the stage for the literature review. The third section discusses the emergence of an empirical literature evaluating the costs and benefits of CGS in a rigorous manner, placing a sharp focus on the design of the evaluation studies. The fourth section reviews selected recent evaluation studies and the fifth section concludes.

## II Benefits and costs of public intervention in lending to SMEs

7. Policy interventions to ease SME access to credit have historically placed a sharp focus on credit guarantees. CGS are a common feature of financial systems around the world, many of which are public entities or public-private partnerships. They have become so commonplace that an OECD (2013a) survey of such arrangements qualifies them as a "structural element of financial systems". Figure 1 provides a recent estimate of the amount of government loan guarantees for bank lending to SMEs across selected OECD countries expressed as a percentage of GDP. The figure highlights that the measured relative importance of CGS differs from country to country, although it should be noted that the numbers shown are not strictly comparable across countries, given that the definitions of guaranteed loans is heterogeneous across countries.

**Figure 1: Government loan guarantees for SMEs, 2014**




*Source:* OECD (2016) and authors' adjustments.
*Note:* *Countries where 2014 data is unavailable make use of 2013 data. ** Slovenia: Data for 2012. *** Authors' adjustment of OECD Scoreboard data for Greece, assuming loan guarantees equal to EUR 600 million in 2014.

8. The observation that these arrangements have become a "structural element of financial systems" suggests that there is a need for comprehensive analysis of costs and benefits of these arrangements. The benefits of having such arrangements in place are rather intuitive, e.g. these guarantees allow overcoming market failures, increase credit availability to SMEs, and they may foster growth and employment opportunities. Costs may instead be not always so evident and they may consist of keeping alive companies that otherwise would exit from the market and crowding out alternative financing sources and companies.

The recently developed G20/OECD high-level principles on SME financing, for example, recognise the need for cost-benefit evaluations to ensure their cost-effectiveness.

9. In this context, it should be remembered that current regulatory and policy reforms aim at encouraging the development of alternative sources of financing for SMEs. Even if it is likely that bank lending will continue to remain a key source of such funding, it is imperative to ensure that the availability and conditions of existing credit guarantee are not discouraging the development of private financing alternatives.

10. Moreover, the scope of publicly supported credit guarantee arrangements has been extended in response to the effects of the global financial crisis and this change has highlighted the issue of their financial sustainability. In fact, current public finance developments and pressures for measured fiscal consolidation put a premium on the effective use of public funds to kick-start real activity growth.

***Overcoming diagnosed market failures***

11. The main benefit of public intervention in lending to the SME sector consists of overcoming the effects of diagnosed market failure. The causes for the latter typically include incomplete or imperfect markets, asymmetric information, market power imbalances, and positive or negative externalities. Where such situations arise, financial markets may not allocate resources optimally, and government intervention may improve on market outcomes.

12. The market failure in the case of SMEs is generally considered one of sub-optimal resource allocation; SMEs in general or certain types of them such as those with high growth potential are seen as receiving fewer funds than they could productively use -- and are demanding. While such a situation might arise both in the case of large and small firms, problems of information asymmetry are likely to be more relevant in the case of small firms, given the disproportionality between the cost of assessing a small company's need for finance and capacity to repay its debt on the one hand and the potential financial return on the other. This issue can arise as a result of the existence of considerable fixed costs associated with such credit assessment.

13. The situation is further complicated by a lack of collateral, limited credit history and lack of expertise to produce financial statements on the part of SMEs. As a result, there is a difference between the demand for finance and the supply of funds to SMEs, which is often considered a structural market failure and is generally referred as the "financing gap for SMEs". Of particular concern is the "financing gap" for those SMEs that have a high potential for future growth and, possibly, for increasing overall productivity and creating new employment. Unfortunately, in practise, such SMEs can only be imperfectly distinguished from other, perhaps less ambitious SMEs such as so-called "life-style" SMEs. Standardised information on past performance and growth prospects of SMEs seeking funding is often unavailable or available only partially or only for short periods. A rational reaction on the part of banks to such a situation is to charge higher interest rate as well as demanding collateral to cover losses in the event of default of the SME on the loan. Further to the value of the collateral for the lender in the case of insolvency of the borrower, the borrowing SME's ability and willingness to provide collateral signals a certain degree of creditworthiness and validity of growth prospects. SMEs, especially young ones, that may have viable business prospects typically lack not only track record but also collateral. They thus can find themselves rationed out of the credit market.

14. Publicly supported credit guarantee schemes for lending to SMEs are one answer to this situation as they perform part of the functions of collateral and limit the losses of the creditor in the case of SME insolvency. To what extent they fulfil the signalling function depends on the quality and credibility of the

selection process that the guaranteeing entity undertakes. Such guarantees are provided to overcome the diagnosed financing gap, which is taken as evidence of market failure.

15. There are, however, also other means of addressing market failures, such as improving transparency, creating and disseminating additional information e.g. through databases that allow to improve assessment of growth prospects and risks, as well as by providing education and training to SMEs to present their information in more standardised formats. Moreover, even where the provision of credit guarantees has been chosen as one of the preferred forms of public intervention, such intervention is not costless. Thus, the social benefits (e.g. employment maintained or created, productivity enhanced, etc.) and costs (discussed in the next section) need to be carefully compared to arrive at a net social benefit measure of the public intervention.

***Adding to the challenges facing initiatives to promote "alternative" financing for SMEs?***

16. Diversifying the source of financing for SMEs is a declared policy goal, although it is feasible that the existence of CGS makes it more difficult to achieve a broader diversification of such sources. Such a situation is an example of the potential costs of CGS. Admittedly, banks continue to be the most important source of external financing of SMEs, although lending has been trending downward in many economies following the outset of the global financial crisis. The causes behind this decline continue to be discussed controversially, although a number of analytical studies suggest that both supply and demand factors are at work. For example, there is empirical evidence that during downturns, such as the one observed in many economies recently, SMEs and other riskier parts of bank loan portfolios tend to face both increased prices for credit, as well as credit supply constraints (OECD, 2013a). At the same time, SME demand for credit tends to fall during these periods as well (Ares, 2013).

17. Somewhat controversial is the specific role that bank regulatory reform that is being rolled out might have played in this context. New regulatory standards might increase the costs of funding for banks, although new levels of capital and liquidity buffers are arguably more adequate than the levels observed prior to the crisis. A banking sector that is prone to greater stability, with fewer financial crises, is beneficial for SME funding, especially as it is clear that bank financing will continue to be crucial for SMEs.

18. Numerous initiatives have been launched to develop alternative sources of SME financing, and a number of such initiatives are cited in a recent OECD (2015) study. Such efforts are motivated by the insight that more diversified funding sources could boost SME funding in normal times and provide resilience during stressed times. However, progress towards achieving this objective are still not completely evident. For example, while the above-mentioned report does not include a comprehensive empirical assessment of the relevance of the different types of financing for SMEs, it draws attention to information available from the European Central Bank (ECB)/ European Commission (EC) survey on access to finance of enterprises (EC, 2014). According to that data, bank loans and overdrafts are still the dominant source of external finance for SMEs in the European Union. Thus, in assessing the costs and benefits of existing CGS, a special emphasis could be placed on detecting evidence that the availability and conditions of support mechanisms might in part explain the dominance of conventional lending, and might limit the development of private alternatives. In other words, strengthening the role of CGS might not be fully consistent with other policy efforts in relation to SME funding, such a securitisation of small business loans.

19. Whether, in the case of reduced CGS activities, these private funding alternatives would indeed be developing on their own is not so clear, however. For example, looking at the experience of the United States, oftentimes considered a reference in terms of small business loan securitisations, one observes that

such transactions involve public intervention. In fact, most of the securitized small business loans involved a guarantee made under the Small Business Administration (SBA) 7(a) Loan Program.

20. In Europe, the market for SME securitisations is much smaller than in the United States. Over recent years, only a very small fraction of the issuance is being placed in the primary market with investors, while most transactions are being retained and mainly driven by the eligibility of Asset Backed Securities (ABS) as collateral for ECB liquidity operations. To revitalise the securitisation of small business loans in Europe, several initiatives have been made, some of which also rely on credit enhancement through guarantees to some extent.

***The use of CGS as countercyclical tool***

21. In addition, loan guarantee arrangements are also used as countercyclical policy tools. Focusing on the policy response to the global financial crisis, evidence suggests that the countercyclical use of CGSs to foster SME credit has been "*effective in mobilising large amounts of credit and easing access to finance for a larger population of enterprises*." The OECD Scoreboard 2016, shows that the amounts of loan guarantees for SMEs have increased in many OECD countries, although not in all, and that the median increase from 2007 to 2014 amounted to more than 45%. Thus, the scope of CGS activities expanded over recent years. Obviously, while such mobilisation of credit might have beneficial effects, it also creates costs, some of which might become visible only with a considerable delay. For example, it might take several years to see the effect of the increase in guarantee activities on the levels of non-performing loans.

***Current fiscal situation puts a premium on the effective use of public funds***

22. The continuing pressures for fiscal consolidation in a large number of countries highlights the need for fiscal authorities to manage both explicit and implicit contingent liabilities. As background, the global financial crisis set the stage for a surge in public debt. Government debt increased substantially, initially as a result of the effect of fiscal stimulus programmes on spending (which included programmes to support SMEs and their funding), then as a result of the negative growth dynamics on revenues and, more recently, as a result of efforts to support struggling real activity growth.[4]

23. It is widely appreciated that balance sheet repair, including by sovereigns, take time following a financial crisis. The current episode is no exception from this observation. The question however is how appropriate the pace is of paying down public debt. On the one hand, the observation that high debt levels tend to have a dampening effect on real activity growth suggests that a faster pace should be chosen. On the other, considerations regarding demand management might suggest a more measured pace.

24. While a discussion about the adequacy of the pace of fiscal consolidation is beyond the scope of the present article, the current situation puts a premium on the effective use of public funds to kick-start real activity growth, support SMEs and economic growth more generally. Assessing the cost-effectiveness of the various existing publicly supported SME support arrangements would appear to be a prerequisite to allow one to make well-informed policy decisions and decide how to effectively spend limited resources in support of that sector.

## III An emerging literature on the evaluation of costs and benefits of CGS

25. Considerable progress has been made in the academic literature on empirical evaluation of policy intervention. The availability of rigorous impact assessments of SME support programmes continues, however, to be rather limited, although it is growing. As regards developments in both *policy*

[4] See chapter 1 of *Sovereign Borrowing Outlook*, 2016, OECD Publishing.

*inputs* (e.g. amount of loan guarantees) and *intermediate outcomes* (e.g. number of firms having received loan guarantees), national systems to monitoring CGS have improved considerably. This development is due also in part to international efforts, which includes the OECD Scoreboard (that is continuously being upgraded) and complementary efforts at the World Bank, European Investment Bank and the European Commission. In 2013, the OECD presented an international overview of the key characteristics of CGS, including their functioning, funding, and performance judged by intermediate outcomes (OECD, 2013b).[5]

26. By contrast, evaluation of *policy outcomes* (e.g. new employment created as a result of loan guarantees) continues to be challenging. In terms of methodology, the key challenge consists of robustly assessing the *causal* impact of policy interventions. A recent review of evaluation studies of a number of different SME support programmes to ease access to finance (not only CGS but also other forms of financing, e.g. alternative micro-finance lending or venture capitalist) is provided by What Works Centre (2014); the remainder of this report draws in part on this review and updates and expands its analysis.

27. Establishing causality between policy input and outcomes requires one to construct a valid counterfactual. In other words, what would have happened to SMEs benefitting from support had they not received that support? To answer this question in a statistically robust way one should ideally design an experiment where the guarantee is granted to a sample of randomly selected SMEs, without taking into account their specific characteristics. In this way, one assures that changes in outcomes can be compared between the "treated group" (the enterprises having benefitted "by chance" from the support measure) and the "control group" (the enterprises not having benefitted from the support measures). However, this ideal design with full randomisation is generally not attainable in practice in the case of SME support policies. In fact, whether or not SMEs are applying for a guarantee is likely to reflect the presence of some specific underlying more or less observable characteristics and, in reality, whether a SME is assigned a bank loan guarantee always depends on the SME fulfilling a certain number of specific characteristics. Guarantees are not assigned randomly.

28. One approach to evaluating the effect of guarantees is to compare the outcome in terms of developments at the level of SMEs (e.g. their growth, employment…) that received the guarantee with the outcome of SMEs that did not received any guarantee. The validity of such an approach is not without problems, however, as these two groups can consist of intrinsically different SMEs. For example, SMEs that received a guarantee might be more motivated and ambitious than others, so that the difference in the observed outcomes cannot be univocally explained by the effect of the guarantee itself. This problem is known in statistics as the *selection-into-treatment* bias. Statistical methods which make use of so-called *control variables* are fortunately available to reduce this source of bias by constructing a robust counterfactual.

29. A guidance on the design of evaluation studies of policy intervention is available from the Maryland Scientific Methods Scale (MSMS, see Sherman et al, 1998), which ranks policy evaluations from 1 (least robust) to 5 (most robust). Madaleno and Waights (2014) adjust the MSMS and develop a classification of assessments of policy interventions based on 5 categories, according to the robustness of the modelling of the counterfactual, the identification of the control group and the dealing with the selection bias. This classification is general and it goes beyond the scope of the current analysis focussing on CGS.

30. We adapt this classification to the narrower scope of the present study and we aim to use it to score the different evaluations considered in the present analysis.

[5] An earlier and widely referenced survey by Beck et al (2010) discusses the main characteristics of a number of partial CGS worldwide.

- **Level-1** evaluations (the least rigorous) present basics statistics on the effects of the CGS arrangements, e.g. chart or tables of output variables. These statistics can be computed just for the treated group or can also compare the output for the treated group with that of a control group. However, these analyses lack of a sound statistical methodology for building the control group (none or inappropriate control variables) and thus they do not present an appropriate counterfactual.
- **Level-2** evaluations add on the application of more sophisticated quantitative analyses such as regression e.g. built to assess the effect of the guarantee on the employment level of treated versus control groups SMEs, without considering an appropriate set of control variables.
- **Level-3** evaluations attempt a more accurate construction of the control group, by the inclusion of control variables to reduce the bias in the selection. These variables may include SMEs characteristics such as age, sector, geographical location, etc…
- **Level-4** evaluations apply quasi-random techniques statistical techniques to obtain the control group. Quasi-random experiments mimic the full randomised design by exploiting some historical, social, or natural factor that result in the policy intervention being implemented to some extent randomly. Whether the latter is the case needs to be convincingly argued, however.
- **Level-5** evaluations (the most rigorous) consist of the fully randomised experiment. This framework is, however, not attainable in this specific area.

Table 1 provides a summary view of the criteria and categories used score the assessments.

**Table 1: Criteria for classification of evaluations of effects on SMEs of the activities of CGS, according to robustness of applied methodology**

<table>
<tr><th rowspan="2">Level</th><th colspan="2">Building of the counterfactual</th><th rowspan="2">Quantitative tools</th></tr>
<tr><th>Treated vs control group</th><th>Control variables</th></tr>
<tr><td>1</td><td rowspan="2">Either no distinction, or distinction but without proper counterfactual</td><td rowspan="2">None or inappropriate choice</td><td>None or very basics statistical analyses (e.g. tables/graphs)</td></tr>
<tr><td>2</td><td rowspan="4">More sophisticated analyses (e.g. regression, OLS, DID, RDD, …)</td></tr>
<tr><td>3</td><td rowspan="2">Distinction between treated and control groups with proper counterfactual</td><td>Basic regression on control variables to build counterfactual</td></tr>
<tr><td>4</td><td>Statistical tools or evaluation designs allowing near-randomization to build the counterfactual</td></tr>
<tr><td>5</td><td colspan="2">Natural experiment</td></tr>
</table>

*Source*: Authors' assessment based on the Maryland Scientific Methods Scale.

31. Among the studies reviewed here, there are also some that analyse data collected at the level of the CGS or at a national or regional aggregated level (as opposed to at the level of the SMEs). While in principle one could build a counterfactual also at that aggregate level, such assessments are more difficult to make and, in fact, no such an attempt has been made as part of the selected studies reviewed here. The studies analysing data at the aggregate level that are reviewed here are categorised as falling into either one

of two groups: they are considered level-1 evaluations if they just present some basics statistics and considered level-2 evaluations if they involve the application of more sophisticated quantitative methods to analyse the data.

## IV Results of a review of recent literature on CGS evaluations

32. In identifying evaluation studies, the present review gives priority to assessments with a level of 3 and 4 under the categorization described in the previous section. Studies with score 5 that would be based on full randomisation of programme participation, treatment and control groups are unavailable in this area. Studies with a score of 3 or 4 use either quasi-randomisation or, at least, construct a valid counterfactual. The present review considers 23 evaluation studies. We identified one level-4 and 14 level-3 studies. To ensure a broader coverage in terms of countries and types of relationships investigated, the present review also considers six studies with a level of 2 and two studies with a level of 1. It is worth noting that some of the studies classified as level 2 make use of fairly sophisticated quantitative tools but they do not adequately construct the counterfactual and thus cannot be classified as level 3. The majority of the studies is published in scientific journals or in thematic series of international/financial organisations (e.g. occasional papers series of Bank of Italy or European Economy discussion papers by the European Commission). The complete list of all the studies considered in this literature review can be found in Appendix 1.

33. As regards country coverage, five studies focus on Italy, four on Canada, three on the United States, two on Japan, and one each for Germany, France, Korea, Malaysia, Portugal, Switzerland, Turkey, United Kingdom and a group of Central, Eastern and South-Eastern European countries. All of the evaluated CGS provide partial guarantees, except for two Japanese programs, which provide full guarantees.[6]

34. In the remainder of the present discussion we focus on five issues, each of which will be addressed in the subsequent five sub-sections:

- Who is undertaking or commissioning the evaluation?
- Against what objective is the evaluation being undertaken?
- What data is being used?
- What policy inputs and outcomes are considered as factors in the evaluation, with what results?
- What is the overall assessment regarding net benefits of the support arrangement?

### *Who is undertaking/commissioning the evaluation?*

35. This question is relevant given the insight gained by Venetoklis (2000) in an analysis of evaluation studies of business subsidy programmes. The analysis concluded that studies commissioned by the agencies that administered by themselves the business subsidy programmes tended to produce more favourable results than studies conducted independently by "outside" organisations/research institutes.

36. Most of the reviewed studies were undertaken by researchers from the academia (14 out of 23 studies), while other studies included staff from Central Banks (5 studies), national governmental entities (3 studies) and international institutions such as the EC or EIF (2 studies), and only three involved staff from a CGS administering the loan guarantees.[7] Thus, we expect that the sample of studies is less affected

[6] In three studies, the information available was not sufficient to allow one to determine whether the evaluated CGS provides either full or partial guarantees.

[7] The numbers do not add up to 23 as there are some reports written by several authors belonging to different entities.

by a potential bias in evaluation results that has been reported for cases of self-assessments. One should note however that it was not always possible to identify who had *commissioned* the study, and hence no information is available on this potential source of bias.

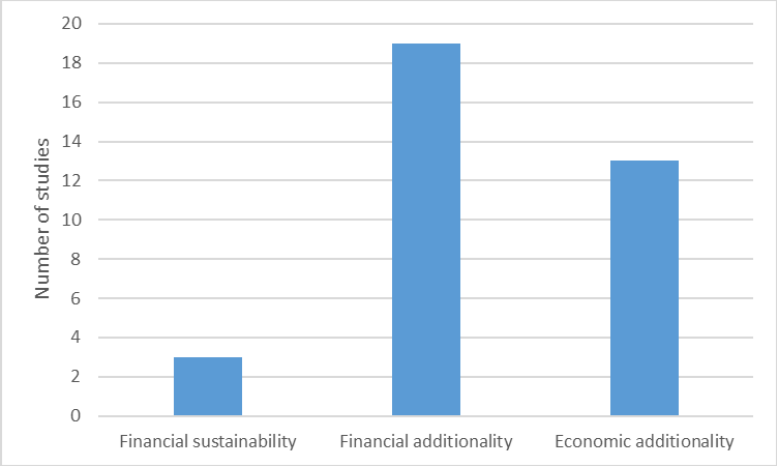
***Against what objective is the evaluation being undertaken?***

37. Three concepts are typically identified as possible objectives against which evaluations are undertaken (OECD, 2013b), which are financial sustainability, financial additionality and economic additionality, although the distinguishing line between the three concepts is not always clear-cut.

- Financial sustainability refers to the ability of the programme to cover the costs of its operations and defaults.
- Financial additionality is reflected in incremental credit flows to SMEs and/or improvements in terms and conditions.
- Economic additionality refers to economic effects, that is to the effects on economic output variables such as employment, turnover, sales and probability of default, which might have been influenced causally by the credit guarantee.

38. As illustrated in Figure 2, 19 out of the 23 studies considered here focus on financial additionality and 13 on economic additionality. Only three studies evaluated financial sustainability. Thus, the overwhelming number of studies focus on the question of how policy intervention affects intermediate outcomes. Among the 13 studies focusing also on economic additionality, most emphasis is placed on benefits as opposed to costs. The three bars add up to more than 23 as some studies evaluate more than one objective: eight studies evaluate both economic and financial additionality, two studies evaluate both financial sustainability and additionality and one study evaluates financial sustainability and economic additionality. Only one study assesses all three objectives.

**Figure 2: Objectives against which the CGS was evaluated**




*Source*: Authors' assessment and calculations based on 23 evaluation studies.
*Note:* The bars sum up to more than 23 because some studies evaluate more than one objective.

***What data is being used?***

39. Availability of adequate data complicates the analysis of SME financial choices and the success of policies to overcome potential difficulties. For example, the OECD Brasilia Action Statement for SME and Entrepreneurship Financing in 2006 concluded that "*a lack of data impedes a complete analysis of the*

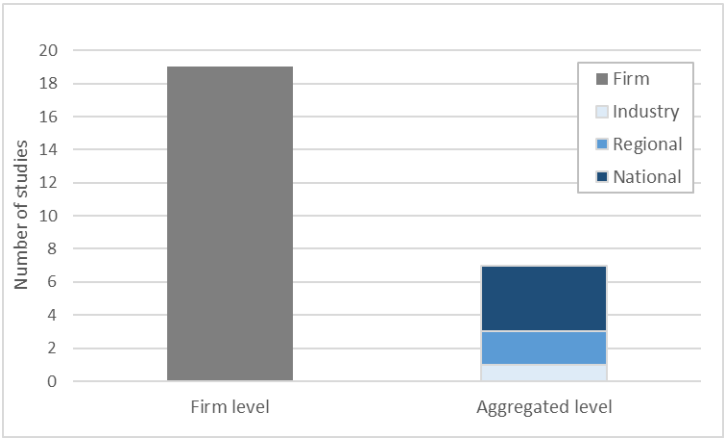
*financial situation of SMEs in OECD and non-OECD economies.*" It urged the OECD "*to take the lead in developing better data and statistical information, thereby allowing the establishment of international benchmarks to facilitate comparisons of the relative performance of markets in providing financing to SMEs and entrepreneurs; and to shed light on outstanding financing gaps and issues.*"

40. The OECD Scoreboard is one such initiative; it was launched in 2010 to fill a data gap in the SME sector and it aims, among other things, to help monitoring the effects of policy measures to facilitate SMEs access to funding. The OECD Scoreboard reports data related to the activities of CGS and facilitates the monitoring of several policy inputs (e.g. amount of loan guarantees) and intermediate outcomes (e.g. number of firms having received loan guarantees). By contrast, its usefulness to assess policy outcomes (e.g. employment created by SMEs having benefitted from guaranteed loans) is more limited, given that it is designed to monitor developments in that sector rather than facilitating cost-benefit of policy interventions.

41. A first finding of the present literature review is that the limited availability of appropriate data continues to be a major impediment to the proliferation of rigorous studies of SME support programmes in general and credit guarantee schemes in particular, as suggested recently also by Asdrubali and Signore (2015). There are two main issues in relation to data needed for the assessment of guarantee arrangement. The first relate to the level of (dis)aggregation available, i.e. data at SMEs level versus data at more aggregate level, such as e.g. at industry or regional/national level, or considering the CGS itself. The second relates to the data sources for the analysis.

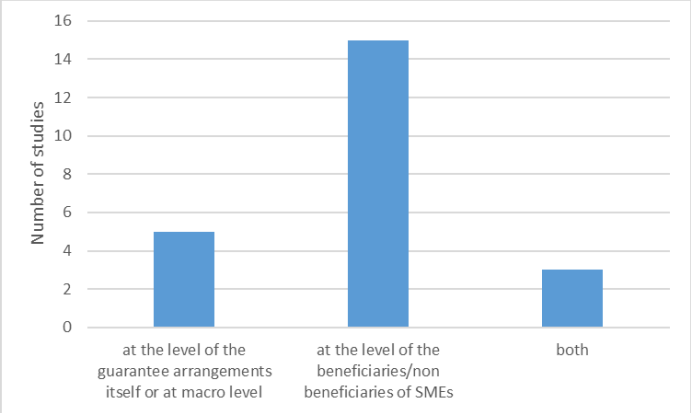
42. Most of the studies considered in the present literature review (19 studies) base their analysis on data collected at the SME level, as shown in Figure 3. Figure 4 summarizes the level at which the analyses of the evaluation studies was conducted: 15 studies developed their analysis at the SME level only, five studies at the macro level and three study developed their analysis at both the micro and macro level.

**Figure 3: Level at which data was collected for the evaluation**




*Source*: Authors' assessment and calculations based on 23 evaluation studies.
*Note:* The two stacked bars sum up to more than 23 because some studies use data at different levels.

**Figure 4: Level at which cost-benefit analysis was conducted**




*Source*: Authors' assessment and calculations based on 23 evaluation studies.
*Note*: One study makes use of data at SME level to run an analysis at macro level. As a result, the number of studies conducting cost-benefit analysis using firm-level data is 18 (sum of middle and right-hand bar), while 19 studies collected firm-level data (see Figure 3).

43. Existing data sources used in the reviewed studies can be categorised into five main classes, as summarized in Table 2.

**Table 2: Summary of the main data sources used in the literature review**

| | |
|---|---|
| **Commercial database** | Commercial data provider of SME balance sheet data. |
| **Credit Register** | Information provider that collects the data supplied by banks and financial companies on the credit they grant to their customers. |
| **Administrative database** | National Statistical/Economical Offices, National Tax Offices, Central Banks data, etc... that provide both micro and macro-level . |
| **CGS** | Data directly provided by the CGS on the guarantees and on which SMEs were granted guaranteed loans. |
| **Surveys** | Either survey directly launched to get *ad-hoc* data for the study or external surveys whose data collected can be used in the study. |

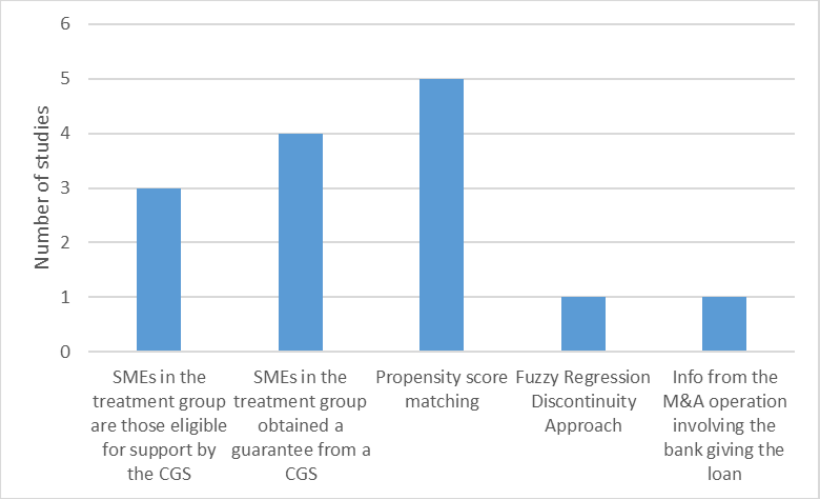
- **Commercial databases.** Commercial databases are, for example, Orbis, a proprietary database produced by Bureau van Dijk which contains balance-sheet data on private companies worldwide, and AIDA, the corresponding database focused on Italian companies only. Japanese studies get data from Nikkei Financial QUEST database, which provide macroeconomic data. The main advantage of this type of data source is that it provides harmonized information on balance sheets and financial statement data. However, it does not include any information on the guarantee obtained by the SMEs, and thus it should always be combined with other datasets.
- **Credit Register.** Italian studies often rely on the information collected by the Central Credit Register, an information source provided and maintained by Bank of Italy which contains detailed information, at firm level on the credits granted to companies. A similar data source available for Italian firms is CERVED, which collects data on firms' solvency and creditworthiness. Also an evaluation of the Portuguese CGS makes use of its national Credit Register to obtain SME data. The main drawback of this type of data source is that its content is not fully publicly available. Moreover, although credit registers are in place in other countries, there are not harmonized across countries and the practices used to collect data (e.g. type, frequency, …) differ, this complicating comparability of results across different countries.

- **Administrative databases.** This category contains a broad range of data sources, mainly databases maintained at statistical offices, economic offices, tax offices, or central banks. One study relies upon an *ad-hoc* database created by the European Investment Fund for Central and Eastern Europe countries. Japanese studies obtain data on banks involvement in the guaranteed credit from databases on Japanese regional banks and on credit cooperatives. A US study takes data on deposits from the Federal Deposit Insurance Corporation. One advantage of this type of data source is that it provides harmonized information on balance sheet and financial statement data. However, data is often aggregated at regional/national levels and does not include any information on the guarantee obtained by the SMEs, and thus it should always be combined with other datasets.
- **CGS.** Some studies use information directly obtained from CGS. Data usually are in the form of micro-level or aggregated amounts of guaranteed loans, data on the operational performance of the CGS and a list of SMEs that were granted loan guarantees. CGS databases have the advantage that they refer to a specific programme, which could then be subjected to the assessment. However, such datasets generally present several issues: they are not publicly available, they typically do not include information on the "control" group of SMEs (i.e. on non-beneficiary SMEs), and they rarely include comprehensive information on the "treated" enterprises.
- **Surveys.** Some evaluation studies base their analyses on the outcomes of either *ad-hoc* surveys designed for the evaluation itself or more general surveys that were designed for other purposes (in some cases by other entities than those undertaking the evaluation). Such surveys are sometimes performed only once and the information collected is not always comprehensive enough to allow a rigorous analysis of the effects of CGS activities.

44. As the discussion above highlights, existing databases are heterogeneous. Appendix 2 shows, for each study considered in the present review, what was the source of the data actually used. It illustrates that administrative databases and data from CGS seem to be the most widely used sources. Data coverage and other aspects of similar types of databases differ from one country to another, which in part explains cross-border differences in the objective underlying and methodologies used for evaluations. Thus, comparing results across different studies is not easy and it is almost impossible to reproduce for *another* country the results of a study obtained in *one* country.

45. Data availability strongly affects one's ability to construct a reasonable counterfactual and to identify treatment and control groups. Figure 5 summarizes the different approaches taken in studies that have constructed a counterfactual. The most common approach taken is to divide SMEs into treated and control groups using information from the CGS on i) who is eligible for a credit guarantee and who is not or ii) who is granted the guarantee and who is not (and coupling this information with some control variables). Other studies refine this basic distinction that the two types of information allow by applying statistical techniques to reduce the selection bias. Examples include propensity score matching and regression discontinuity approaches.

**Figure 5: Techniques used to construct the counterfactual**




*Source*: Authors' assessment and calculations based on 23 evaluation studies.
*Note:* Propensity scores matching pairs units in the treated group with those in the control groups that show similar values on the propensity score discarding all the unmatched units. The propensity score is the conditional probability of being assigned to a particular treatment given a vector of observed variables.
A regression discontinuity design identifies a threshold that divides units into either the treatment or control groups, selecting units lying closely on either side of the threshold. "Info from M&A operation involving the bank giving the loan" stands for an approach that attempts to detect the exogenous source of treatment from the features of the guarantee scheme, combined with the merge and acquisition (M&A) of a local bank by a large banking group.

### *What policy inputs and outcomes are considered as factors in the evaluation, with what overall results?*

*Studies considering data at the level of SMEs*

46. When focusing on studies developed at the level of the SMEs, the factors that are most widely considered are the amount of total and bank debt and the cost of credit (as intermediate outcomes), employment, probability of default, profit and sales (as policy outcomes). Figure 6 lists the factors employed the most: the total length of the bar indicates the overall number of studies including that factor; the three colours distinguish the share of studies where the factor is found to have an effect in the desired direction (light blue slices), in the unexpected direction (dark blue slices), or no clear effect (blue slices).

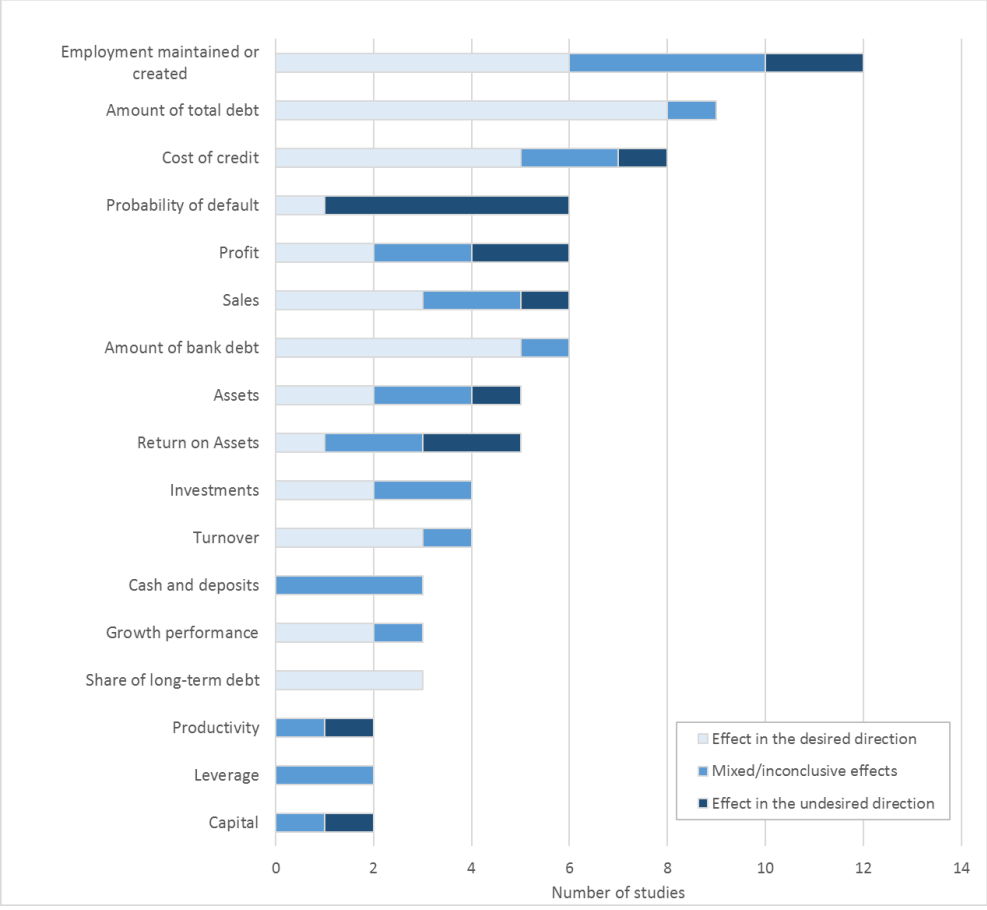
47. The amount of total and bank debt are almost always found to be affected in the desired direction by the intervention of the CGS, as the availability of credit guarantees tends to increase the debt of beneficiary SMEs. These variables are however better understood as a policy input rather than an output variable. In fact, what matters is not whether SME debt is lower or higher *as such*, but how whether or not and how any increased SME debt feeds through to other variables of interest such as higher employment and growth. Another finding of the literature review is that also the cost of credit is often affected in the desired direction by the guarantee, i.e. the existence of a credit guarantee is associated with lower interest rates.

48. Several evaluation studies reviewed here assess the impact of the guarantee on the employment maintained or created. This variable is typically found to be affected in the desired (positive) direction by credit guarantees; six studies document such a link, while two studies find the effect to be negative and four find no effect. Thus, taken the results of the various studies together, there is evidence that the activities of CGS produce economic effects that are in addition to what would have occurred in the absence of such arrangements.

49. While the impact of the guarantee on profits and sales is mixed, it is worth highlighting the results of the evaluations in relation to the impact of the CGS on the probability of default of beneficiary SMEs. It turns out that five studies out of the six considering this variable seem to point to a positive relationship between the guarantee and the default probability. This result would be undesired, and it could be consistent with the hypothesis that guarantees might be granted also to zombie companies, which are then incapable to exploit the support. To the extent that CGS activities increase the probability of default of beneficiary firms, such costs need to be weighed against the benefits of those activities. Measures of costs besides the probability of default, such as the crowding out of purely private initiatives, are never assessed in the empirical studies available to us.

50. Productivity is considered as a factor in two studies only and results show that there is no firm evidence of a positive effect on this factor. In fact, there is some limited evidence of a negative effect. Asdrubali and Signore (2015) detect a negative impactin the short run, followed by a negligible effect in the medium run. In particular, the authors observe that a negative impact on productivity does not constitute a novel finding in the assessment of CGSs (Asdrubali and Signore, 2015, quoting Oh et al., 2009), but also note that there are issues related to the estimation of the productivity itself and that their finding might reflect the existence of an "adaptation period" after having obtained the loan. Mixed effects of CGS activities on productivity are detected by Riding et al (2007), whose estimation model however includes factors that are collinear with productivity, making their correspondents estimated coefficients unstable and thus difficult to interpret (although the authors note that collinearity does not affect the overall model fit).

**Figure 6: Main factors considered in evaluations of cost and benefits of CGS (at SME level)**



*Source:* Authors' assessment based on the factors considered in 23 evaluation studies.
*Note:* Factors considered in a single study only and control variables considered in several studies are not shown in the chart. Control variables, i.e. variables that help in reducing the potential 'selection-into-treatment' bias, include the age of the firm and of the owner, sector and geographical location and the type of relationship with the lending bank.

51. Table 3 shows what sources were used in the 15 studies considered here to obtain the relevant data for the factors reported in Figure 6. Two important caveats should be noted in interpreting the information shown in that table. First, it is not complete in the sense that it was not possible to unequivocally identify the exact source for each of the factors considered in some studies. Second, empty cells do not imply that a given factor cannot be found in that specific database, but rather that none of the reviewed studies used that specific source for obtaining data on that specific variable. Notwithstanding these caveats, the table suggests that administrative databases are used most widely to obtain data for CGS evaluations, followed by commercial databases and surveys. The range of data obtained from the CGS themselves seems to be somewhat more limited than those for the other databases.

**Table 3: Data sources used in the evaluation studies to gather factors at SMEs level**

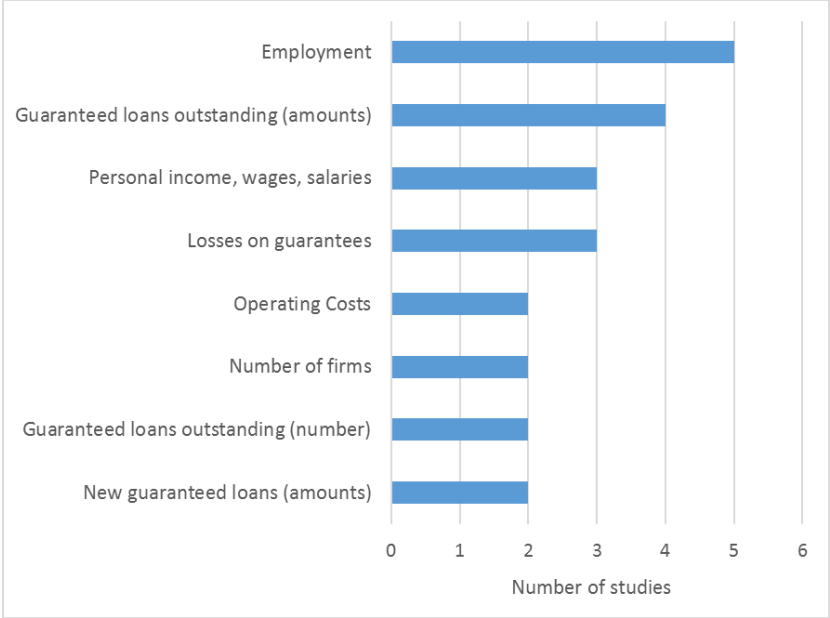
| Factor | Commercial database | Credit register | Administrative database | CGS | Survey |
|---|---|---|---|---|---|
| SMEs debt | ● | ● | ● | ● | |
| Cost of credit | ● | ● | ● | | ● |
| Probability of default | | ● | ● | | |
| Profits | ● | | ● | ● | ● |
| Sales | ● | | ● | ● | |
| Assets | ● | | ● | ● | ● |
| Investments | | | ● | | |
| Leverage | | ● | | | ● |
| Capital | | | ● | | ● |
| Cash and deposits | | ● | ● | | |
| SMEs performance (growth, productivity, turnover, …) | ● | | ● | | ● |
| Employment maintained or created | ● | ● | ● | ● | ● |

*Source*: Authors' assessment based on 23 evaluation studies.
*Note*: A bullet indicates that there exists at least one study by the entity undertaking it with results specified in the column. For brevity purposes, some of the factors have been merged and reported as a single one.

*Studies considering data at the level of the CGS*

52. The number of studies considered in the literature review developing an analysis at the level of the CGS is rather small (eight studies out of 23) and thus prevents one from drawing general conclusions. Figure 7 shows that the level of employment, amount of guaranteed loans, income, wages and salaries, and are the factors which are considered most often among these studies.

**Figure 7: Factors considered in evaluations of cost and benefits of CGS (at level of CGS)**




*Source:* Authors' assessment based on 23 evaluation studies.
*Note:* Factors considered in a single study only and control variables are not considered in the chart.

53. Table 4 indicates what sources were used in the studies to obtain the relevant data for the factors reported in Figure 6. The table suggests that the studies considering data at the level of the CGS rely on data administrative databases, CGS or surveys.[8]

**Table 4: Data sources used in the evaluation studies to gather factors at CGS level**

| Factor | Commercial database | Credit register | Administrative database | CGS | Survey |
|---|---|---|---|---|---|
| Employment | | | ● | | ● |
| Guaranteed loans | | | | ● | |
| Personal income, wages, salaries | | | ● | | |
| Losses on guarantees | | | | ● | ● |
| Operating costs | | | | | ● |
| Number of firms | | | ● | ● | |

*Source*: Authors' assessment based on 23 evaluation studies.
*Note*: A bullet indicates that there exists at least one study by the entity undertaking it with results specified in the column. For conciseness, some of the factors are merged under a single category.

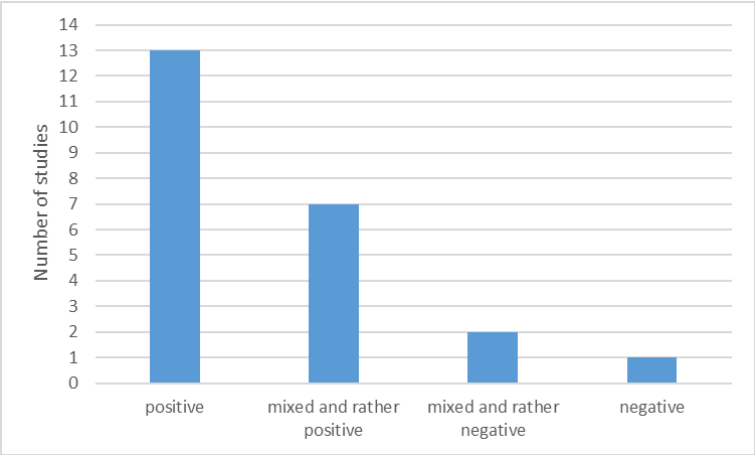
### *What is the overall assessment of net benefits of the support arrangement?*

54. Most academic studies focus on specific factors affecting either the costs or benefits, rather than weighing them against each other. In fact, one might argue that such an assessment is best be undertaken at the level of the policy-makers; which is why the CMF has expressed its interest in exploring the issue in the first place.

[8] Again, the two important caveats mentioned in the context of the discussion of Table 3 apply here as well.

55. The evaluation studies reviewed here are classified into four categories according to the overall conclusion of the analysis. Figure 8 shows the result of this broad classification and suggests that the overall assessment of the contribution of CGS is positive. Altogether 13 studies demonstrated that the existence of a CGS lead to benefits for the SMEs and/or the economy in general. However, about half of the studies suggest that the assessment is not unequivocally positive. In fact, these studies highlight that overall net benefits are harder to identify as results are mixed at least with regard to some factors. Some undesirable effects are identified, such as increases in the default probability of the beneficiary SMEs. These and other costs would have to be weighed against the otherwise positive outcomes of the activities of CGS programs.

**Figure 8: Overall outcome of evaluation studies of net benefits of credit guarantee schemes**




*Source:* Authors' assessment based on 23 evaluation studies.

56. This simple classification based on the overall results of the studies can be coupled with information on the authors' affiliation to see whether any trend comes out. Results based on available studies are summarized in Table 5: each row corresponds to a specific type of affiliation, ranging from a pure academic (research institution) to more institutional ones (Central banks, government and international institutions, like BIS, EC, EIF). Authors belonging to CGS are considered separately. Columns headers indicate the different overall results that might emerge from each individual study. More specifically, a black bullet in a cell indicates that there is at least one study conducted by the entity indicated in the row headers that has contained the conclusion indicated by the column header. The table suggests that studies undertaken by research institutions generate results that span over the entire range of possible results. By contrast, the range of results from the other studies is more limited. Also, on average, studies undertaken by other entities tend to generate more favourable results. In the case of self-assessments, results seem to be always positive.

**Table 5: Authors' affiliations and overall outcome of evaluation study**

| | | General outcome of the study | | | |
|---|---|---|---|---|---|
| | | Negative outcome | Negative/mixed outcome | Positive/mixed outcome | Positive outcome |
| Authors' affiliation | Research institution | ● | ● | ● | ● |
| | Central bank | | | ● | ● |
| | Research institution and government | | | ● | |

| | | | | | |
|---|---|---|---|---|---|
| | International institution | | | | ● |
| | Government | | | | ● |
| | CGS | | | | ● |

*Source*: Authors' assessment based on 23 evaluation studies. Update from Schich S., S. Maccaferri and J. Cariboni (2016), which used 17 evaluation studies.
*Note*: A bullet indicates that there exists at least one study by the entity undertaking it with results specified in the column. International institution includes a joint study from international institution and central bank. Classification is based upon authors' affiliation as indicated in the publication.

## V Concluding remarks

57. The present report reviews the results of an emerging literature that undertakes evaluations of the costs and benefits of publicly supported CGS using methods that are considered "state of the art" in terms of rigour judged by modern policy impact evaluation methods. One finding of this review is that considerable progress has been made more recently in evaluating costs and benefits of CGS activities. That said, there are continuing challenges posed by the limited availability of appropriate data to conduct rigorous evaluations of the costs and benefits of CGS.

58. Summarising this emerging literature, there is evidence that credit guarantees are positive for firm access to debt finance, that is that the arrangements provide *financial additionality* by increasing the availability of credit and/or reducing its costs. Perhaps less is known about financial sustainability of these programmes. As regards *economic additionality*, results are mixed:

- There is generally a lack of evidence for improved firm performance in terms of investments; there is also no firm evidence of a positive effect on productivity, although only very few studies consider this factor as part of their empirical analysis.

- There is some evidence that CGS can have positive effects on employment levels.

- There is however also evidence that loan guarantees are associated with increased default risk of beneficiary firms. This observation is important and it underscores the need for a careful cost-effectiveness evaluation of credit guarantee arrangements, as the benefits of higher employment would need to be compared with the increased risk of default potentially brought about by CGS activities.

59. The need to evaluate both the economic benefits and economic costs of SME support arrangements has been recognised. For example, it is acknowledged as part of recent initiatives to strengthen the role and activities of SMEs by developing high-level principles on SME (OECD) and on credit guarantee arrangements for the G20 (World Bank). The World Bank has developed high-level principles for the design, implementation, and evaluation of public credit guarantee schemes for SMEs. The principles ask for systematic and periodic evaluations to be conducted and published, in particular on additionality and sustainability of CGS, without however recommending the choice of any specific evaluation method. Similarly, the *G20/OECD High-Level Principles on SME Financing* emphasise the need for public SME support programmes to be assessed, in order to ensure their additionality and cost effectiveness.

60. Despite this agreement among policy makers on the need for rigorous cost-benefit analyses, in practice it is not so clear to what extent public authorities undertake rigorous cost-benefit analyses of CGS activities and/or exploit their findings to improve the functioning of the arrangements. To find out more

about different national approaches in this regard, an OECD/EC Survey on evaluating publicly supported financial guarantee programmes for SMEs has been circulated among OECD and EC members and partner countries. A synthesis of results is included in the companion report.

## Appendix 1: Evaluation studies considered

61. This appendix aims at briefly illustrating all the studies evaluated in the present report. For each country or geographic area, we report all the bibliographic references and a short description of the work. Papers selected either belong to the classical literature in this field or were directly provided by respondents to the OECD/EC survey.[9]

| Country | Reference report, CGS or program analysed and main goal |
|---|---|
| Italy | Zecchini and Ventura (2009)<br>**CGS:** Fund for Guarantee to SME (SGS).<br>**Goal:** Evaluate the effectiveness of SGS in increasing credit availability without compromising financial sustainability. |
| | Columba et al (2010)<br>**CGS:** Mutual Guarantee Institution (MGI).<br>**Goal:** (a) verify whether MGI afforded affiliated firms with better credit conditions than other similar firms; (b) test whether the benefits depend on MGI characteristics. |
| | De Blasio et al (2015)<br>**CGS:** Fund for Guarantee to SME (SGS).<br>**Goal:** Evaluate the impact of the SGS guarantees on firms' availability of credit and interest rates, default probability, economic performance and financial conditions. |
| | D'Ignazio and Menon (2013)<br>**CGS:** Regional CGS program.<br>**Goal:** Evaluate the impact of a regional CGS program beneficiary firms' financial conditions and interest rates. |
| | Mistrulli and Vacca (2011)<br>**CGS:** Mutual Guarantee Institution (MGI)<br>**Goal:** (a) give an overview of the main characteristics of the IT MGS; (b) show whether the MGI support to SMEs during the financial crisis played a role, with focus on the amount and quality of guaranteed loans and on the cost of credit. |
| Canada | Seens (2015)<br>**CGS:** Canada Small Business Financing (CSBF) program.<br>**Goal:** Measure the costs of admitting the CGS and the ("additional") direct and indirect benefits and calculate the net benefit/cost at country level. |
| | Chandler (2012)<br>**CGS:** Canada Small Business Financing (CSBF) program.<br>**Goal:** Evaluate the economic impact of the CSBF program in terms of firms' level of salary, employment, revenues and number of jobs. |
| | Riding et al (2007)<br>**CGS:** Canada Small Business Financing (CSBF) program.<br>**Goal:** Estimate the incrementality of loans made available by the CSBF program. |
| | Seens and Song (2015)<br>**CGS:** Canada Small Business Financing (CSBF) program.<br>**Goal:** Estimate the financial incrementality of the CSBF program. |
| United States | Hankock et al (2007)<br>**CGS:** Small Business Administration (SBA) program<br>**Goal:** (a) evaluate how much SBA-guaranteed loans cushioned the real activities (b) assess whether |

[9] Unfortunately, a report provided by Belgium (Breemersch et al, 2014) was only available in Flemish and it is not considered in this list.

| Country | Reference report, CGS or program analysed and main goal |
|---|---|
| | the size of these effects were larger during recession or when interest rates were higher. |
| | Craig et al (2007)<br>**CGS:** Small Business Administration (SBA) program<br>**Goal:** Evaluate the impact of SBA guaranteed loans on firms' economic performance, with focus on per capita income growth. |
| | Brown and Earle (2015)[10]<br>**CGS:** Small Business Administration (SBA) program<br>**Goal:** Estimate the effects of SBA guaranteed loans on firms' employment growth. |
| Japan | Uesugi et al (2010)<br>**CGS:** Special Credit Guarantee Program (SCG) for Financial Stability.<br>**Goal:** Study the effectiveness of CGS in increasing the availability of loans to SMEs and in improving the ex-post performance of borrowing firms. |
| | Ono et al (2013)<br>**CGS:** Emergency Credit Guarantee (ECG) Program<br>**Goal:** (a) assess if bank-firm lending relationship enhanced or dampened the effects of the ECG program; (b) evaluate ex-post performance of both firms that received and did not received ECG guaranteed loans. |
| Germany | Schmidt and van Elkan (2010)[11]<br>**CGS:** German Guarantee Banks<br>**Goal:** Evaluate whether, during the financial crisis, the activities of the CGS, backed by the state, brought macroeconomic benefits to the German economy. |
| France | Lelarge et al (2010)<br>**CGS:** Loan Guarantee Program (OSEO-Garantie).<br>**Goal:** Evaluate the impact of the loan guarantee program on new business formation and growth. |
| Korea | Kang and Heashmati (2008)<br>**CGS:** Korea Credit Guarantee Fund (KCGF) and Korea Technology Credit Guarantee Fund (KOTEC).<br>**Goal:** Evaluate the effects of credit guarantees on firms' survival probability and on their productive performances. |
| Malaysia | Boocock and Shariff (2005)<br>**CGS:** Malaysia, New Principal Guarantee Scheme (NPGS), Credit Guarantee Corporation (CGC).<br>**Goal:** Investigate whether it is possible to generate financial and economic additionality without putting the financial resources under undue strain and/or jeopardizing its relationship with the participating financial institutions. |
| Portugal | Farinha et al (2016)<br>**CGS:** Portuguese Mutual Credit Guarantee System<br>**Goal:** Estimate the effects of an increase in loan guarantees on the firms' structure of debt, level of investments, survival and probability of loan default. |
| Switzerland | B,S,S. (2013)[12] |

[10] The response from the United States to the OECD/EC survey draws attention to four research papers, including Hankock et al (2007), Brown et al (2015), Brown and Earle (2012) and Brown and Earle (2015). As the last three reports are very similar in terms of methodology and type of data used, only one of the three is considered in the present literature review as a separate study.

[11] The German response to the OECD/EC survey provided us with a descriptive report on the main features of the German CGS and two papers (Schmidt and van Elkan, 2006 and 2010) assessing the macroeconomic benefits of the CGS. As the two studies are very similar in terms of methodology and type of data used, the present literature review accounted for the most recent one only.

| Country | Reference report, CGS or program analysed and main goal |
|---|---|
| | **CGS:** Commercial Guarantee Organizations (Schweizer Bürgschaftswesen)<br>**Goal:** Evaluate the effects of CGS activities since the reorganisation of the system in 2007, including a comparison with international practises. |
| Turkey | Tunahan and Dizkirici (2012)<br>**CGS:** Credit Guarantee Fund (KGF)<br>**Goal**: Evaluate the structure and performance of CGS and compare it with international practices. |
| United Kingdom | Allison et al (2013)<br>**Goal:** (a) evaluate the impact of guaranteed loans on firms' employment, sales, productivity and exports; (b) measure economic benefits (in terms of additional economic output) against opportunity costs of finance and levels of loans default. |
| Central, Eastern and South-Eastern European Countries | Asdrubali and Signore (2015)<br>**CGS:** Multi-Annual Programmes for SMEs in Central, Eastern and South-Eastern European Countries<br>**Goal:** Evaluate the effects of having received a guaranteed loan on firm performance, measured in terms of employment, production, profitability, and factor productivity. |

[12] The Swiss response to the OECD/EC survey provided us with a report of the Federal Council most of which is dedicated to describing the main features of the CGS. That report included however a reference to a report including a detailed evaluation of the CGS (available in German only). The latter is included in the present literature review is reported in the references of the above-mentioned report.

## Appendix 2: Data source used in the evaluation studies

62. This appendix summarizes in Table 6 the main data sources used in all the studies considered in this literature review.

**Table 6: Main data sources used by the evaluation studies considered in the present review**

| Reference paper | Commercial database | Credit Register | Administrative database | CGS | Survey |
|---|---|---|---|---|---|
| Zecchini and Ventura (2009) | ● | | | ● | |
| Columba et al (2010) | | ● | | | ● |
| De Blasio et al (2015) | | ● | | ● | |
| D'Ignazio and Menon (2013) | | ● | | ● | |
| Mistrulli and Vacca (2011) | | ● | ● | | |
| Seens (2015) | | | ● | ● | ● |
| Chandler (2012) | | | | | ● |
| Riding et al (2007) | | | | | ● |
| Seens and Song (2015) | | | ● | | ● |
| Hankock et al (2007) | | | ● | ● | |
| Craig et al (2007) | | | ● | ● | |
| Brown and Earle (2015) | | | ● | ● | |
| Uesugi et al (2010) | ● | | ● | | |
| Ono et al (2013) | ● | | ● | ● | ● |
| Schmidt and van Elkan (2010) | | | | ● | ● |
| Lelarge et al (2010) | | | ● | ● | |
| Kang and Heashmati (2008) | | | | ● | |
| Boocock and Shariff (2005) | | | | | ● |
| Farinha et al (2016) | | ● | ● | | |
| B,S,S. (2013) | | | ● | ● | ● |
| Tunahan and Dizkirici (2012) | | | | ● | |
| Allison et al (2013) | | | | | ● |
| Asdrubali and Signore (2015) | ● | | ● | | |

**References**

Allison G., Stone I., Braidford P., Houston M. (2009): "Early Stage Assessment of the Impact of the Enterprise Finance Guarantee (EFG) on Recipient Firms". Policy Research Group Durham Buiness School/St Chad's College URN 09/1594

Allison G. F., Robson P., Stone I. (2013): "Economic Evaluation of the Enterprise Finance Guarantee (EFG) Scheme". Project report, department for business, Innovation and Skills

Ares & Co (2013): "Alternative Finance for SMEs and Mid-Market Companies". The CityUK publication, October.

Asdrubali P., Signore S. (2015): "The Economic Impact of EU Guarantees on Credit to SMEs". European Economy Discussion Paper 2, July 2015

Beck T., Klapper L. F., Mendoza J. C. (2010): "The typology of partial credit guarantee funds around the world". *Journal of Financial Stability*, vol 6, pag 10-25

Boocock G., Shariff M. N. M. (2005): "Measuring the Effectiveness of Credit Guarantee Schemes: Evidence from Malaysia". *International Small Business Journal*, Vol. 23, n. 4, p. 427-454.

Breemersch K., Decramer S., Lecocq C., Reynaerts J. (2014): "Economische analyse van de Waarborgregeling", Beleidsrapport STORE-B-14-002

Brown J. D., Earle J. S. (2012): "Do SBA Loans Create Jobs? Estimates from Universal Panel Data and Longitudinal Matching Methods". CES Working Paper 12-27

Brown J. D., Earle J. S. (2015): "Finance and Growth at the firm level: evidence from SBA loans". IZA Discussion paper N. 9267

Brown J. D., Earle J. S., Morgulis Y. (2015): "Job Creation, Small vs. Large vs. Young, and the SBA". Center for Economic Studies, Working paper CES 15-24, September.

B,S,S. (2013): "Wirksamkeitsanalyse Bürgschaftswesen, Teilstudie Wirkungsanalyse". Schlussbericht, B,S,S. Volkswirtschaftliche Beratung Basel

Chandler V. (2012): "The economic impact of the Canada small business financing program". *Small Business Economics*, Vol. 39 pag 253-264

Columba F., Gambacorta L., Mistrulli P. E. (2010): "Mutual guarantee institutions and small business finance". *Journal of Financial Stability*, Vol 6, Issue 1, p. 45-54.

Craig B. R., Jackson W. E., Thomson J. B. (2007): "Small Firm finance, Credit Rationing and the Impact of SBA-Guaranteed Lending on Local Economic Growth". *Journal of Small Business Management*, Vol 45(1), pag 116-132

De Blasio G., De Mitri S., D'Ignazio A., Finaldi Russo P., Stoppani L. (2015): "Public Guarantees to SME Borrowing in Italy. An RDD Evaluation". Working paper

D'Ignazio A., Menon C. (2013): "The causal effect of credit guarantees for SMEs: evidence from Italy". Bank of Italy Working Papers, n. 900.

European Commission (2014): "ECB-EC Survey on the Access to Finance of Enterprises (SAFE)". Analytical Report 2014, European Commission, DG Enterprise and Industry, Brussels.

Farinha L., Felix S., Ribeiro N. (2016): "How effective is the mutual credit guarantee system in Portugal?" Working paper

Graham Review of the Small Firms Loan Guarantee, recommendations, 2004.

Hankock D., Peek J., Wilcox J.A. (2007): "The repercussions on small banks and small businesses of bank capital and loan guarantees". AFA 2008 New Orleans Meeting Paper

Kang J. W., Heashmati A. (2008): "Effect of credit guarantee policy on survival and performance of SMEs in Republic of Korea". *Small Business Economics*, Vol.31, pag 445-462

Kraemer-Eis H., Lang F., Gvetadze S. (2015): "European Small Business Finance Outlook" Working Paper 2015/28, EIF Research and Market Analysis, European Investment Fund, Luxembourg.

Lelarge C., Sraer D., Thesmar D. (2010): "Entrepreneurship and Credit Constraints: Evidence from a French Loan Guarantee Program". Chapter in NBER book: International Differences in Entrepreneurship, Josh Lerner and Antoinette Schoar editors.

Madaleno M., Waights S. (2014): "Guide to Scoring Methods Using the Maryland Scientific Methods Scale"; what works centre for local economic growth; available at http://www.whatworksgrowth.org/public/files/Policy_Reviews/14-10-31-Access-to-Finance.pdf .

Mistrulli E., Vacca V. (2011): "I confidi e il credito alle piccole imprese durante la crisi". Bank of Italy Occasional Papers, n. 105.

OECD (2013a): "Financing SMEs and Entrepreneurs 2013: An OECD Scoreboard". OECD Publishing, Paris.

OECD (2013b): "SME and Entrepreneurship Financing: The Role of Credit Guarantee Schemes and Mutual Guarantee Societies in supporting finance for small and medium-sized enterprises". OECD Publishing, Paris.

OECD (2015): "New Approaches to SME and Entrepreneurship Financing: Broadening the Range of Instruments". OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264240957-en

OECD (2016), Financing SMEs and Entrepreneurs 2016: An OECD Scoreboard, OECD Publishing, Paris, http://dx.doi.org/10.1787/fin_sme_ent-2016-en.

Oh I., Lee J.-D., Heshmati A., Choi G.-G. (2009): "Evaluation of credit guarantee policy using propensity score matching". *Small Business Economics* Vol 33, pag 335–351

Ono A., Uesugi I., Yasuda Y. (2013): "Are lending relationships beneficial or harmful for public credit guarantees? Evidence from Japan's Emergency Credit Guarantee Program". *Journal of Financial stability* Vol 9 pag 151-167

Riding A., Madill J., Haines G. Jr. (2007): "Incrementality of SME Loan Guarantee". *Small Business Economics*, Vol 29 pag 47-61

Schmidt A. G., van Elkan M. (2006): "The macroeconomic benefits of German Guarantee Banks". Institute for Small and Medium-sized Enterprise, University of Trier

Schmidt A. G., van Elkan M. (2010): "The macroeconomic benefits of German Guarantee Banks". Institute for Small and Medium-sized Enterprise, University of Trier

Schich S., S. Maccaferri and J. Cariboni (2016, fortcoming): "Un moment opportun pour l'évaluation des coûts et bénéfices des garanties de crédit et la relance des politiques de soutien aux PME", *Revue d'économie financière*, n°123.

Seens D. (2015): "Cost-benefit Analysis of the Canada Small Business Financing Program". Canada Small Business Financing Program, Small Business Branch Research and Analysis Directorate

Seens, D., Song, M. (2015): "Requantifying the Rate of Incrementality for the Canada Small Business Financing Program". Small Business Branch Research and Analysis Directorate

Sherman L. W., Gottfredson D. C., Mackenzie D. L., Eck J., Reuter P., Bushway S. D. (1998): "Preventing Crime: What works, What Doesn't, What's Promising". Research in Brief, National Institute of Justice

Tunahan H., Dizkirici A. S. (2012): "Evaluating the Credit Guarantee fund (KGF) of Turkey as a Partial Guarantee Program in the Light of International Practices". *International Journal of Business and Social Science*, Vol. 3, Issue 10.

Uesugi I., Sakai K., Yamashiro G. M. (2010): "The effectiveness of Public Credit Guarantees in the Japanese Loan Market". *Journal of the Japanese and International Market*, Vol. 24, p. 457-480.

Venetoklis T. (2000): "Methods Applied in Evaluating Business Subsidy Programs: A Survey". VATT Discussion Paper 236, Government Institute for Economic Research, Helsinki, available at http://www.vatt.fi/file/vatt_publication_pdf/k236.pdf

What Works Centre (2014): "Evidence Review 4 – Access to Finance". What Works Centre for local economic growth, available at http://www.whatworksgrowth.org/public/files/Policy_Reviews/14-10-31-Access-to-Finance.pdf

Zecchini S., Ventura M. (2009): "The impact of public guarantees on credit to SMEs". *Small Business Economics*, Vol 32, p. 191-206.