CREDIT GUARANTEES IN SME LENDING, ROLE, INTERPRETATION AND VALUATION IN FINANCIAL AND ACCOUNTING TERMS

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Abstract:

The paper is about to examine how credit guarantees prompt the extension of new credit lines for SMEs, for whom high risk perception is an obstacle in attaining external funding. As credit guarantees are gaining share in lending (which is the case for example for Hungary), the pricing of a guarantee should more carefully reflect the underlying risk exposure for which the guarantee was provided. When pricing the credit guarantees, a new approach is put forward in literature: a derivative instrument, namely the credit default swap is proposed to estimate the value of the different scenarios under the credit guarantee schemes. This paper exhibits the CDS-based approach of evaluation (i.e. the use of the market-based CDS fee as an indicator for the value of the guarantee), together with the uncertainties of the model's approximations. Finally, the evaluation in accounting is to be depicted, as the IFRS 9 requires a similar scenario-based modelling for the credit guarantees.

Key words:
Credit guarantee, SME funding, lender's risk, financial instruments

JEL: G23, G31, M41

1   Introduction: Heading for the introductory chapter

The recent global financial crisis has questioned if market solutions can be counted on as the primary source of access to finance for SMEs, or, if not, then what kind of additional schemes could possibly promote the flow of credit. Financial institutions have become reluctant to extend uncollateralised credit to SMEs, even at high interest rates, in part because of the high costs of obtaining adequate information on the true credit quality of the borrowers. Also, many of these firms do not have the necessary amount and type of assets that could serve as collateral for the loan. As a result, many SMEs with economically viable projects cannot obtain the necessary financing from the regular system of financial intermediation. This phenomenon – often referred to as the SME financing gap (i.e. OECD, 2006[1]) – has laid down the basic need for designing the credit facility guarantees (or more simply, credit guarantees).

The recent upturn of state-supported counter-guarantee funds in Central and Eastern Europe has confirmed that the guarantee schemes are especially vital in the midst of the recession and that

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[1] The term "financing gap" can be interpreted as a situation whereas a sizeable share of economically significant SMEs cannot obtain financing from banks, capital markets or other suppliers of finance. These, often innovative SMEs would have the capability to use the funds productively if they would have access to funds.

although the SME sector does require guarantee programmes to boost their loan accessibility their issues are much deeper than that. The guarantee programmes are anti-cyclic, and therefore are able to promote growth for the SMEs, by reducing their external cost of funding (Gozzi – Schmuckler, 2016).

Credit guarantee schemes "are used widely across economies as important tools to ease financial constraints for SMEs and start-ups" (OECD, 2013). The volume of the outstanding guarantees as a percentage of GDP is the highest in Italy, Portugal and Hungary. In Hungary, the total sum of the guaranteed loans stayed above 10 per cent during the past ten years, and amounted to 12 per cent in 2016. The guarantees decreased to the cost of external credit funding down to 1.9-2.2 per cent in case of working capital loans, which resulted in the growth of borrowing.

2   Methods

The aim of this study is primary the rationalisation of credit guarantee funds, as depicted by the literature. It is about to examine how credit guarantees prompt the extension of new credit lines for SMEs, for whom high risk perception is an obstacle in attaining external funding; and by this, to demonstrate the prevalence of credit guarantees in SME lending.

The other main aim of the study is to depict how the risk of the credit guarantees are measured in respective to the underlying credit contract. On the financial markets the credit default swap agreements are presented as the derivative instruments for an analogue to the credit guarantees. Pricing of credit guarantees in this way provides an approach to evaluate their fair value (as of the discounted value of conditional payments) in financial and accounting terms.

The OECD (2006) survey suggests that although a significant financing gap exists for SMEs, an appropriate mix of financial instruments and institutions made available in a timely manner will enable the SME sector to realise its potential. Basically the lack of bank finance can be an obstacle to SMEs. Access to credit finance is difficult for SMEs, due to the lack of creditworthiness, the absence of collaterals, and the high cost of funding (the later reduces the SMEs' willingness to raise credit). Because of that reason, a credit guarantee offers risk mitigation to lenders by taking a share of the lenders' losses on SME loans in case of default (Levitsky, 1997). In general, a credit guarantee scheme provides third-party credit risk mitigation to lenders through the absorption of a portion of the lender's losses on the loans made to SMEs in case of default, typically in return for a fee. The following part of this article describes the features of credit guarantees, and then investigates into their role (filing the credit gap).

2.1   The substance of credit guarantees by definition

In order to make the point on the importance and essence of credit guarantees, a reliable definition is necessary – in this regard, the most comprehensive design for a credit guarantee is the following: A credit facility guarantee serves as a security for a credit line, in which the guarantor irrevocably undertakes to pay to the lender, upon the lender's first demand, any amount up to the maximum guaranteed amount (including principal, interest and all other charges), upon receipt of the lender's request stating that the borrower has not repaid the amount claimed under the guarantee on the due date (OECD, 2008).

According to Beck *et al* (2010), though (partial) credit guarantee schemes vary according to their nature of ownership and funding, it is common that a credit guarantee *per se* is a financial product that a small entrepreneur can buy as a partial substitute for collateral. However, it is important to note, that – in contrast to collateral – a credit guarantee does not provide a threat to the borrower in case of default (Green, 2003). It is a promise by the guarantor to pay all or part of the loan if the borrower defaults. O'Bryan (2010) describes the guarantor is an independent entity that acts as a third party between the lending bank and a borrower.

However, the entity who provides the credit guarantee can be financed from state sources, and thus the credit guarantee scheme can perform as a mean of government intervention (*Douette*, et al, 2014). In this case, a credit guarantee scheme is a policy instrument for easing financing constraints for SMEs (Holton *et al*, 2013). A credit guarantee of this kind also provides third-party credit risk mitigation to lenders with the objective of increasing access to credit for SMEs. This risk mitigation happens through the absorption of a portion of the lender's losses on the loans made to SMEs in case of default, typically in return for a fee (World Bank, 2015).

In contractual terms, a credit guarantee is a promise to carry out someone else's obligation in the event of default. Credit guarantee schemes provide guarantees on loans to borrowers by covering a share of the default risk of the loan. In case of default by the borrower, the lender recovers the value of the guarantee by part (Honohan, 2010). Guarantees are usually provided against a fee, covered either by the borrower, the lender or both; and substantially funded by state initiatives. In case of a default, the lender usually is obliged to proceed with the collection of the loan and share the proceeds with the guarantor. Credit guarantees allow the partial transfer of credit risk stemming from a loan or a portfolio of loans. In this respect, they show similarity to credit insurance products and credit default swaps (Vienna Initiative, 2014).

From the lender's perspective, a credit guarantee is a form of security, linked to the creditworthiness of the guarantor. For illustration, Figure 1 shows the process of an SME loan appliance. First the SME decides to apply for loan at a financial institution, usually at a bank. The enterprise never gets in direct contact with the guarantee association. In case the bank decides that guarantee will be needed in order to issue loan they process the details of the loan appliance and the SME, and the guarantor decides whether it agrees to guarantee or declines. In case of portfolio based guarantee scheme, the process is automated.

Figure 1: The process of loan application with credit guarantee backing
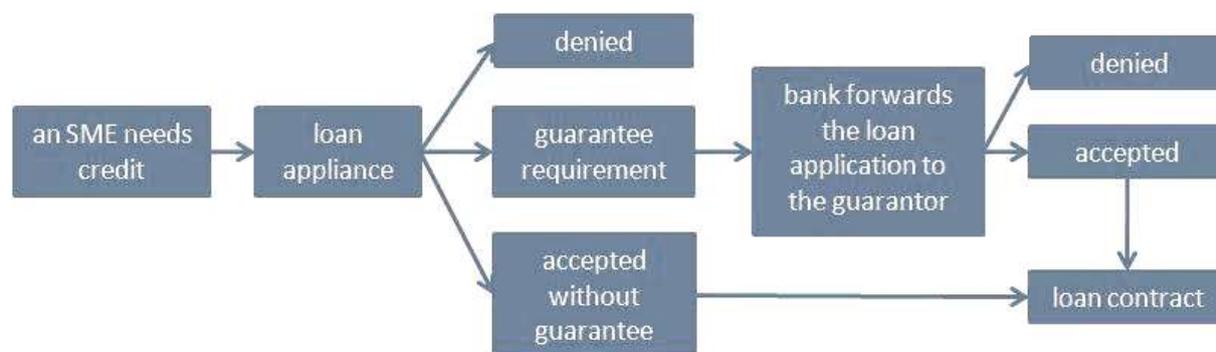
Source: own from OECD, 2008

The Principles for Public Credit Guarantee Schemes for SMEs (World Bank, 2015) includes that the terms and conditions between the credit guarantee supplier and the lender should comply with prudential regulation of credit risk mitigation techniques, such as the Basel requirements, as they are applicable to the lender. "This ensures that the guarantee issued by the CGS can provide capital relief to the lender for the proportion of the underlying loan exposure covered by the guarantee." (Principle 11)

Another principle is about risk-based pricing, and recommends that the fees for the provided guarantees must be set in according to the riskiness of the underlying loan. The riskiness "is reflected in the combination of guarantee coverage ratio, exposure at default, and loss given default." (Principle 12) Pricing – in accordance with the credit loss – is described in part 3.1.

2.2   The key issue of trust in lending necessitates the involvement of credit guarantees

As the recent global financial crisis has triggered public initiatives designed to relaunch the flow of credit, the expansion of SME finance gained priority. In fact, small and middle enterprises do not get credit easily, mainly because of their lack of collateral, the unfavourable risk-reward ratio and the cost of administration. The emergence of credit guarantee schemes are rationalised by the reluctance of the lender to provide credit facilities for low credit rated enterprises, especially when the lack of creditworthiness is coupled with the lack of valuable collaterals. The credit spreads' sensitivity to interest rate tends to increase as the credit quality declines (Hull *et al,* 2005).

In this regard, collateral issues are mentioned by Deelen and Molenaar (2004), and O'Bryan (2010), so it can be safely said that it is one of the key elements. In the current economic climate, with the low market activity disabling a speedy and successful capitalisation on collateral, banks are even stricter in terms of credit security. Experts state that a borrower who is willing to offer a higher level of collateral, particularly personal like a house, possibly has a higher intention of repaying the underlying loan, and is favoured by the banks. According to Deelen and Molenaar (2004), the features of a good collateral from the banks' perspective is that its ownership is easy to verify; it is easily and cheaply seized; it cannot be removed; the costs of converting it into cash or some other desirable asset are low and that its value remains relatively stable over time. The issue is that small entrepreneurs often lack collateral that's attributes match the list, so they need some kind of help.

An even bigger factor in the financial institutions' reluctance to provide loans to SMEs is the existence of information asymmetry. In his analysis O'Bryan (2010) defines the asymmetry as that "the lender has much less knowledge of the potential borrower's likelihood of default than the borrower does". SMEs are unable to provide the banks with information on their creditworthiness, which can be the end product of the lack of appropriate accounting records and the above mentioned collateral issues. The integrity of the borrower is at stake, as the bank can only guess whether the enterprise is reliable, while obtaining the necessary information can also cost too much.

Green (2003) states that the third reason for the banks' reluctance to provide credits to SMEs is the 'high administrative costs of small-scale lending'. As the costs of administration aren't directly proportional to the size of the enterprise, it is more cost effective to have a lower number of loans with higher value than more loans with lower value. Another related issue is that for a number of reasons, the administrative costs of monitoring loans, loan applications, and information-gathering can be higher for SMEs than bigger firms with advanced accounting and administration expertise (Vienna Initiative, 2014).

Green (2003) ends his list with high risk perception as the fourth main issue in SME credit financing – he comments that "commercial banks tend to impute a high risk to small enterprises and are therefore reluctant to extend credit to them. Due to their small size and inherent vulnerability to market fluctuations, the mortality rates of small enterprises are relatively high". It is the nature of the enterprises which scares the banks away, as they are usually young, lack the financial history, lack expertise in business management and organisational management, lack a quality accounting and controlling setup, which all raise different risks. Busetta and Zazzaro (2009) describe the issue as "they have a short credit history, meet less rigorous reporting requirements and the availability of public information on them is scarce", agreeing with Green (2003) that the less 'professional' nature of the SMEs scare the creditors away. To override the financing gap, credit guarantee mechanisms are intended to address this market failure, by reducing the financial loss suffered by the financial institutions in the case of defaults (OECD, 2013).

In order to alleviate SMEs' difficulties in accessing funds, the bank lending can be complemented by additional instruments, like credit guarantees. Kraemer-Eis *et al* (2014) argues that under these conditions for SMEs the public support is inevitable. Financial instruments such as credit guarantees have multiplier effects and encourage more private financing. The OECD (2013) report shows that the use of Public Guarantee Schemes is a direct fiscal policy tool to alleviate financial distress by SMEs, and, at the same time, a proper manner to involve private funds through the financial

intermediary system. In this respect, the government's agency - by granting counter-guarantees - over the risk from the guarantor, up to a pre-defined share of the guarantee. In Hungary for example, the coverage ratio is maximum 80 per cent in case of the largest credit guarantee agency, Garantiqa. As a consequence, public counter-guarantee enhances the guaranteed credit volume that can be made available to SMEs, as well as the schemes' credibility and reputation.

3   Paper results: valuation

The Vienna Initiative (2014) in credit guarantee schemes emphasizes that guarantee fees should be risk-based when feasible. The price of guarantees should reflect the risk exposure, but remain attractive to prevent adverse selection of high-risk SMEs. When pricing the credit guarantees by financial models, a new approach is put forward in recent literature: credit default swap spreads are proposed to estimate the amount of credit guarantee fees. Credit default swap (CDS) agreements are a sort of derivatives, by which credit protection can be purchased. CDSs are marketable instruments; and consequently the regulators warn that since the buyers of protection using CDS do not need to have an insurable interest in the underlying reference entity, protection can be purchased for either hedging or trading purposes (BIS, 2010).

In hedging, the buyer of a credit default swap receives credit protection, whereas the seller of the swap guarantees the credit worthiness of the reference entity. By doing this, the risk of default is transferred from the holder of the fixed income security to the seller of the swap.

The CDS market price, also called as CDS spread or fixed rate, should be multiplied by the notional amount of the swap in order to calculate the regular payment due under the swap agreement. The value of a CDS can be interpreted as a scenario analysis where the credit survives or defaults. In the next section (3.1.) this analysis is to be presented.

On the other hand, from the accounting perspective the evaluation of credit guarantees relates to the International Financial and Reporting Standards (IFRS) 9, which requires to consider the possible scenarios and also the risk or probability that a credit loss occurs. Section 3.2. deals with the accounting issues of credit facility guarantees.

Guarantees may reduce, but in practice do not eliminate, the need for collateral in the CESEE region (Vienna Initiative, 2014), and within, in Hungary. As the financial institutions require sizable collateral from borrowers beside the guarantees, guarantees cannot fully fulfil their role in alleviating the financial constraints of entrepreneurs who lack collateral. This gap could be addressed through fair pricing of the guarantees and through imposing caps on the level of collateralisation.

3.1   Financial valuation of credit guarantees

In financial markets, CDS is an agreement between two parties to exchange the credit risk of an issuer (reference entity). The buyer of the credit default swap is said to buy protection, against losses in the event of bankruptcy, the issuer failing to pay outstanding debt obligations (called as credit event). The seller of the credit default swap is said to sell protection in the case of a credit event. Like in a financial guarantee, in a CDS the holder – the protection buyer – can swap the reference asset – the loan – for cash equal to the par value of the reference asset (Lister *et al*, 2003).

Under a CDS contract, the buyer usually pays a periodic fee and profits if the reference entity has a credit event, or if the credit worsens while the swap is outstanding. At the same time, the seller collects the periodic fee and profits if the credit of the reference entity remains stable or improves while the swap is outstanding. According to the ISDA standards, the CDS market price is a definite measure of the reference entity's credit risk (the higher the spread the greater the credit risk is). The CDS market price, also called as CDS spread or fixed rate, should be multiplied by the notional amount of the swap in order to calculate the regular payment due under the swap agreement.

Figure 2: Valuation of a CDS
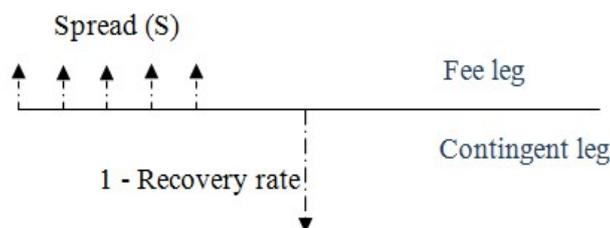
Source: ISDA standard model for computing CDS spreads (http://www.cdsmodel.com/cdsmodel/)

The value of a single name CDS can be interpreted as a scenario analysis where the credit survives or defaults. The protection seller (long risk) hopes the credit survives, and discounts the expected annual payments by the probability of this scenario (called the fee leg). The protection buyer (short risk) hopes the credit defaults, and discounts the expected contingent payment (Notional Value less Recovery Rate) by the probability of this scenario (called the contingent leg).

The contingent leg - resulting from the possibility of default on the underlying loan – can be projected. Based on these projections, the net present value of the guarantees can be calculated (IPC 2016).

Since one type of CDS may be contracted for different maturities, each maturity represents a spread that ensures the present value of the expected spread payments (Fee Leg) equals the present value of the payment on default (Contingent Leg). The formula for a Par CDS contract can be written as:

$$S_n \sum_{i=1}^{n} \Delta_i P_{Si} DF_i + Accrual\ on\ Default = (1-R) \sum_{i=1}^{n} (Ps_{i-1} - Ps_i)DF_i$$

Where,
S_n = Spread for protection to period n
Δ_i = Length of time period i in years
Ps_i = Probability of Survival to time i
DF_i = Risk-free Discount Factor to time i
R = Recovery Rate on default

In lending practice, valuing a credit guarantee directly upon credit default swaps is rather problematic: changes in the borrower's credit rating (the risk premium) as well as the amortisation of the loan carry limitations to the method. Schurmann (2010) in his modelling assumed complete markets, which has allowed the hedge to replicate the CDS by trading in the risk-free loan and the underlying risky loan (and thus eliminated the problem of the risk premium), and also assumed that there are no loan prepayments. Because the hedge (which is to be set up for the next period within the term of the loan, in case the borrower does not default) is taking a short position in the risky loan and a long position in the risk-free loan in the model, the value of the CDS should approximate the difference between the present values of the contractual loan payments at the market risk-free and risk rates. This approximation is less and less accurate as the probability of default increases.

Deriving default probabilities is a crucial step in pricing credit derivatives. Joro and Na (2003) proposed a simulation-based CDS pricing approach based on jump-diffusion process. As they argued, the simulation results in greater pricing accuracy because it makes the discounting of contingent payments and the accrual fees easier from the exact date when the default actually occurs.

3.2 Evaluation of credit guarantees from accounting perspective

In order for an instrument to be a financial guarantee, the relevant protection provider must under the relevant contract reimburse the holder for a loss it incurs because a specified debtor fails to make

payment when due. It is this requirement for a reimbursement of loss that generally makes it identically a financial and not an insurance contract (Ng 2010).

IFRS 9 (in Appendix A) defines the financial (credit) guarantee as a contract that requires the issuer to make specified payments to reimburse the holder for a loss it incurs, because a specified debtor fails to make payment when due in accordance with the original or modified terms of a debt instrument. This definition covers the "event of default" in financial terms.

Paragraphs 5.5.17–5.5.18 of IFRS 9 require that the measurement of expected credit losses should reflect an unbiased and probability-weighted amount that is determined by evaluating a range of outcomes. An entity need not necessarily identify every possible scenario, but it should consider the risk or probability that a credit loss occurs.

Paragraph B5.5.28 of IFRS 9 further explains how to measure expected credit losses. It states that expected credit losses are a probability-weighted estimate of credit losses (ie the present value of all cash shortfalls) over the expected life of the financial instrument. A cash shortfall is the difference between the cash flows that are due to an entity in accordance with the contract and the cash flows that the entity expects to receive. (IFRS, 2015) By introducing the term "credit shortfall", the IFRS aims to measure the expected loss (1 – recovery rate on default). The net cash shortfalls for each scenario comprise of the net present value of: (a) the expected cash outflows to reimburse the holder for the expected loss it incurs on the guaranteed asset; less (b) expected future premium receipts.

Paragraph 4.2.1(c) of IFRS 9 requires that after the initial recognition of an issued financial guarantee contract at its fair value, the issuer shall subsequently measure the financial guarantee contract at the higher of: (a) the amount of the provision for expected credit losses; and (b) the amount initially recognised less, when appropriate, the cumulative amount of income recognised. (IFRS, 2015)

Comparing with the financial valuation of the credit guarantees, the consideration of the expected cash flows and the time value of money is similar in accounting, too. However, the accounting approach does not reflect the fact that cash outflows under the guarantee depend upon the risk of default of the guaranteed financial asset, whereas the premiums to be received are subject to the risk of default by the holder of the guarantee.

4   Discussion

The enhanced risk measures of recent years are considerable in respect of the lending capabilities and willingness of the bank-based financial intermediation, especially when the credit lending to SMEs is analysed. Guarantee programs are then designed to mitigate the lending gap of this concern. This paper has investigated to credit guarantees, by examining their means in SME funding, and by raising valuation issues.

The basis of financial valuation of credit guarantees was a derivative instrument, whereas the credit risk of a (sovereign) borrower is concerned and priced. The credit default swap (CDS) is an agreement in which one party buys protection against losses occurring due to a credit event up to the maturity date of the swap. The seller of a CDS insures or guarantees that the buyer of the credit derivative will be compensated with the face value of the loan in the event of a borrower default. Comparing with the financial valuation of the credit guarantees, the consideration of the expected cash flows and the scenario of default is also required in IFRS.

Concerning the further research, there is a need for more in-depth evaluation at the micro and macro levels, to assess the overall welfare implications of guarantee systems. In Hungary, considerable amount of credit portfolios have been built throughout the past years, backed by guarantee initiatives. More investigation is needed on the multi-dimensional aspects of credit guarantee systems, which take into account direct and indirect costs and benefits on the fiscal budget and on the financial intermediary system.

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