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An economic analysis of Dutch, US and German law

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CHAPTER 2

The beneficial economic function of the guarantee relationship in corporate finance

1 Introduction

This thesis is focused on the research question: *How should opportunistic use of the guarantee relationship in the context of corporate finance be regulated?* To answer that question, this book uses a method of comparative law and economics as defended in chapter 1. Chapter 1 also explained the particular branch of economics used: transaction cost economics with a focus on opportunism. From this perspective, this chapter will provide the first part of an economic analysis of the guarantee relationship. In this part, the analysis will focus on the economic function of the guarantee relationship, without taking externalities into account (chapter 3 will focus on those externalities). The central question to be answered in this chapter is:

> *What is the beneficial economic function of the guarantee relationship in corporate finance?*

The question is specifically focused on the context of corporate finance. Whereas related topics such as the function of secured debt and the function of insolvency systems have been analyzed to a great extent by both lawyers and economists,[142] the economic function of the guarantee relationship is until now underexposed.[143] Use of the guarantee relationship could possibly lead to efficient results that deserve protection, but this should not simply be assumed. In order to be able to assess in which way use of the guarantee relationship should or should not be regulated, a thorough understanding of how and under which conditions the guarantee relationship in corporate finance exactly leads to efficient results is necessary. Using mainstream economic analysis, this chapter aims to both discover and explain beneficial economic functions of the guarantee relationship.

In discussing the economic function of the guarantee relationship, this chapter exclusively focuses on functions that can in principle be efficient. The discussion examines under which

[142] Katz 1999, pp.48–49; see for an overview of the literature on the economic function of both security rights and bankruptcy: Bowers 2000, p.90 ff.
[143] See also Tracht, 2000, p. 498.

circumstances efficient effects are to be expected and under which circumstances efficiency gains are unlikely or even negative. Opportunistic use of guarantees and the costs associated to opportunistic use are not yet discussed here. Costs to insiders and externalities to outsiders of such opportunistic use are discussed in chapter 3.

Why are guarantees often seen as efficient in the context of corporate finance? A simple explanation is that the guarantee can be a good thing because it allows the borrower to borrow more, by giving security to the lender, thus supporting the flow of money, in turn stimulating the economy. But why and how does it give the lender more security and why is that a good thing? Just the fact that the guarantor is an alternative source of collection for the creditor can usually not explain this.[144] The guarantee doesn't make the risk of the creditor disappear, but shifts risk from the creditor to the guarantor (or the debtor)[145]. If the guarantor would comparatively be a better risk-bearer, the shift of risk could make economic sense as such.[146] Paradoxically, especially in small-business finance, guarantees are actually usually provided by *inferior* risk bearers.[147] A slightly more detailed account may be that a division in tasks can be obtained with the guarantee: the lender specializes in providing liquidity, while the guarantor specializes in monitoring. This is indeed the conclusion Katz reaches, in probably the most influential law and economics account of the guarantee relationship.[148] These accounts are not necessarily wrong, but both these legitimating accounts hide the inherently problematic nature of the guarantee relationship. The guarantee often functions as a governance device that alters the incentive structure of the debtor and guarantor, giving the creditor control over the debtor.[149] Such control can under circumstances lead to efficient outcomes, but is also very problematic from both a legal and an economic perspective, which is the topic of discussion in chapter 3.[150]

This chapter focuses on the possibly beneficial functions of the guarantee relationship. The functions of reducing ex ante opportunism by reducing information asymmetries, adverse selection and credit rationing will be discussed first (paragraph 2). The second and most important beneficial function of the guarantee relationship in corporate finance to be discussed is reducing debtor misbehavior, or ex post opportunism (paragraph 3). The last two functions of the guarantee relationship to be discussed in this section are enabling specialization in ex-post monitoring (paragraph 4) and enabling specialization in risk-bearing (paragraph 5). Each paragraph will also shortly discuss the types of guarantees and guarantors best able to perform these functions.

[144] Mann, 1998; 1999.

[145] Although not directly obvious, guarantees are often set up to shift risk to the debtor through a secured contractual relationship between the guarantor and the debtor that gives the guarantor near-certainty of recourse to the debtor. This is standard practice in the field of independent guarantees.

[146] See further paragraph 5 below.

[147] See paragraph 5 below.

[148] Katz, 1999

[149] The empirical literature shows that the guarantee indeed works as such a bonding device, reducing moral hazard of the borrower, see Pozzolo, 2004; Haas and Millone, 2016; however see Blazy and Weill, 2013, reaching a contrary conclusion

[150] See to some extent also R. J. . Mann, 1997, p. 235; Baird, 1994a, p. 2262 ff; Nussbaum, 1990, pp. 614–615. This point will be extensively developed in this chapter.

2 Signaling

For accurately assessing the risk involved in lending to a specific borrower, the lender needs information on the borrower. The borrower probably has information on his own creditworthiness that the lender lacks. It can be costly for the lender to obtain quality information on the borrower, especially in lending to small firms.[151] The lender cannot solely rely on the statements of the borrower to reduce the asymmetry in information between borrower and lender, as the borrower may overstate his creditworthiness in order to apply for a lower interest rate or to be able to borrow at all. There will thus always be an asymmetry in the information available to the borrower and the information available to the lender, as a result of which the lender can fall victim to ex ante (before concluding the contract) opportunism by the borrower.[152] The lender might for example provide a loan in a situation in which he would not have provided the loan if he knew the risk involved. This information asymmetry can lead to adverse selection, discussed in paragraph 2.1 below, and credit rationing, discussed in paragraph 2.2 below. After that, paragraph 2.3 discusses which types of guarantees are most suitable to perform a signaling function.

2.1 Adverse selection

Because of information asymmetries, the problem of adverse selection can occur. Adverse selection is a term that originates in literature on insurance.[153] If an insurer asks a flat rate to all its customers because it does not know the risk involved in insuring each individual customer, while the customers themselves do have some knowledge about the risk they pose to the insurer, high-risk customers are more likely to select the insurance because they consider it cheap, while low-risk customers consider it expensive. As a result, the insurer ends up with mostly high-risk customers and will have to adjust prices, resulting in the same mechanism happening again and again.

For lenders looking to select borrowers this mechanism can work in the same way. Different borrowers have different probabilities of default. The expected return to the lender depends on the risk involved in lending to a certain borrower. The lender will want to identify the risk involved in lending to a certain borrower and accordingly charge a certain interest rate. The difficulty is that the interest rate charged will work as a selection mechanism that has counter-productive effects from the viewpoint of the lender. The higher the interest rate, the more likely that high-risk borrowers wish to take the loan, whereas low-risk borrowers will turn it down.[154]

A mechanism similar to adverse selection may also occur after concluding the loan agreement. After the borrower has agreed on a certain interest rate with the lender, the interest rate in question may influence future behavior of the borrower. A high interest rate may for example induce the borrower to generally select projects with relatively high risk and high return. Charging a higher interest rate may therefore result in borrowers taking higher risk, the latter of

[151] Größl and Levratto, no date; Mann, 1998; 1999.
[152] Schäfer and Ott, 2004, p. 94.
[153] See generally Akerlof, 1970.
[154] Stiglitz and Weiss, 1981, p. 393; compare Mann, 1999, p. 2229.

which reduces expected return to the lender. Stiglitz and Weiss call this the *incentive effect* of charging interest.[155]

Because of adverse selection and the incentive effect, the lender cannot just raise the interest rate up to the point that demand meets supply of credit. Stiglitz and Weiss argue that, under the conditions of adverse selection and the incentive effect, the optimal expected return to the lender may be at an interest rate at which demand exceeds supply.[156] The lender, not being able to rely on the price mechanism, will thus (up to a point, dependent on the transaction costs involved) try to assess the risk involved in each borrower. The borrower in turn will try to *signal*[157] to the lender that he is a creditworthy borrower. Such a signal will have to be credible, as less creditworthy borrowers may try and overstate their reliability.

Many have argued that collateral in general[158] and specifically guarantees help mitigating such adverse selection problems by signaling the creditworthiness of a borrower.[159] The idea is that granting collateral will be more expensive for an unreliable borrower than for a reliable borrower, because the collateral will only be seized in the event of actual default, which will be costly for the borrower. Thus, the theory is that more reliable borrowers will choose to post collateral, while unreliable borrowers prefer a higher interest rate instead of granting collateral.[160] For the guarantee, the credibility of the signal thus lies in the fact that the creditor can call upon the guarantor in case of default of the debtor. Assuming the debtor pays the guarantor a premium for his service,[161] low-risk debtors are theoretically more likely to post guarantees, as they can obtain these at lower cost. Thus, a debtor can signal his credibility by posting a guarantee.

There is some empirical indication that collateral (such as guarantees) can signal credit quality,[162] but there is also some evidence that contradicts the theory.[163] Blazy and Weill for example suggest that their data shows guarantees do not solve adverse selection problems, by showing that riskier borrowers more often post collateral such as guarantees.[164]

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[155] Stiglitz and Weiss, 1981, p. 393.

[156] Stiglitz and Weiss, 1981.

[157] *Signaling* here means credibly conveying information to the lender.

[158] The existing studies in the economic literature on the functions of collateral often do not distinguish between different types of collateral (Steijvers et al. 2010, p.246; Avery et al. 1998, pp.1020–1021.); while some do make a distinction between 'personal (or: outside) collateral' (including both guarantees and real security rights granted by a (legal) person other than the borrower) and 'business (or: inside) collateral' (meaning real security rights granted by the borrower itself) (See for example Steijvers et al. 2010, Brick & Palia 2007; Chan & Kanatas 1985; Blazy & Weill 2013). A clear distinction is however made by Mann, also in the context of information asymetries: Mann, 1999

[159] Greenbaum and Thakor, 2007, p. 194; Chan & Kanatas 1985, pp.93–94; Tracht 2000, p.519; Katz 1999, p.68; Boot et al. 1991, p.458; Heine & Janal 2010, p.9; Doh and Ryu, 2004, pp. 172–174; Armour, 2006, pp. 18–19; Mackaay and Parent, 2013, p. 7; Bester, 1985; Chan and Thakor, 1987; Cowling, 2010, p. 37; see otherwise Stiglitz and Weiss, 1981; Inderst and Mueller, 2007; Scott, 1986, p. 928; Mann, 1999, pp. 2244–2245 however argues this effect is often overstated.

[160] Besanko and Thakor, 1987; Cowling, 2010, p. 37.

[161] Also possible is that the guarantor is not paid, but that there is some close relationship between guarantor and debtor that makes the debtor internalize the risk the guarantor takes by guaranteeing. This could be because of a family or friendly relationship with the guarantor, a long-standing business relationship or because the guarantor has secured his (contingent) recourse claim with security rights.

[162] Jimenez, Salas and Saurina, 2006, p. 257.

[163] Honohan, 2010, p. 2; Blazy and Weill, 2013; Inderst and Mueller, 2007.

[164] Blazy & Weill 2013, p.1112; 1120; There may be other explanations for the result of Blazy and Weil. Concluding a loan can be conceptualized as a two-stage event. In the first stage, the debtor applies for a loan and the lender assesses the risk involved in making a loan to this lender, using other means than asking for a guarantee relationship (the guarantee is not the only screening device the lender uses. Financial intermediaries such as banks generally specialize in obtaining information on the credit risk of borrowers: Greenbaum and Thakor, 2007, p. 42). Depending on the outcome of the

Posting collateral can only be a signal of creditworthiness if there is something to signal. This point is less obvious than it seems. In order to be able to signal, the borrower needs to have private information on his own creditworthiness and the lender needs to know that the borrower has such private information.[165] If the borrower does not have (quality) private information on his own creditworthiness, which will often be the case when the borrower is a private individual or small company, he can also not signal this to the lender.[166] The borrower may *think* he possesses private information, but that will almost always be the case when someone applies for a loan. Leaving aside cases of fraud or desperation, no one would apply for a loan that he knows he is going to default on. As De Meza and Southey put it:

> *"It is not just that banks are better informed, but that borrowers actually have biased expectations. Our general perspective is that it is the unrealistically optimistic who, through self-selection, will dominate the entrepreneurial class (…)"*[167]

The guarantee by a business owner thus merely becomes a signal of the optimism of the entrepreneur, and says little on the creditworthiness of either the debtor or the guarantor. The lender that relies on the signal may end up with a pool of overoptimistic borrowers, instead of high quality borrowers.[168] Because any borrower is likely to try and signal creditworthiness, for example by using a guarantee, the signal can only be meaningful if the lender can establish by other means that the borrower is likely to have quality private information and will act rationally.[169] This may apply to larger borrowers with a high degree of sophistication.[170] Even large corporations with a high degree of sophistication may however not always be able to signal credibly, because the internal barriers within such corporations may impede the flow of

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assessment, the lender may ask for a guarantee relationship if necessary to further screen the borrower and, if the borrower has substantial wealth, at the same time lower risk by enabling an alternative source of collection. From this two-stage perspective, it seems likely that borrowers asked to post a guarantee are generally high risk borrowers, although among these high risk borrowers the lower risk borrowers are more likely to post guarantees. In other words, it could be that borrowers that are flagged as relatively high risk by other screening devices are more often required to signal their reliability by posting a guarantee. That could explain the empirical finding of Blazy and Weill that loans secured by outside collateral are relatively high risk. Indeed, Jimenez et al find that among borrowers on which the lender has credit information, granting collateral is more likely for high risk borrowers, whereas among borrowers with private information, granting collateral is more likely for low-risk borrowers (Jimenez, Salas and Saurina, 2006). This is consistent with the theory that borrowers can signal credit quality by granting collateral (See also R. J. Mann, 1997; Mann, 1998, explaining why safe borrowers use less collateral. Put shortly, the costs involved in granting collateral can be prohibitively high, mainly because transaction costs can be high in certain cases, especially assessing information on the collateral, and because collateral gives the lender leverage over the firm, which restricts the firm in optimally using the assets in future dealings.).

[165] See also Mann, 1999, pp. 2229–2230.

[166] Compare Mann, 1999, p. 2240.

[167] De Meza and Southey, 1996.

[168] De Meza and Southey, 1996, p. 376.

[169] Or as Mann, 1999 explains, the fact that another source (the guarantor) signals that the borrower is of good quality, doesn't necessarily make the borrower more reliable. It moves the question of reliability to another level. The lender will have to verify the reliability of the signal; a good example is the, recently surging, practice of providing 'guarantor loans' to consumers with bad credit ratings. 'Amigo loans' is such a company, which states on their website: *"It doesn't matter if you have bad credit, are self employed, or even if you're currently unemployed - the most important thing for us is that you have a friend or family member who trusts you enough to guarantee to make repayments if you don't, and that you can afford to repay the loan. Before we pay out any guarantor loans, we have a good old fashioned chat over the phone with both you and your guarantor. We base our decisions on simple common sense." (https://www.amigoloans.co.uk/* retrieved 18-11-2016) A guarantor may be inclined to think that his 'trust' in the borrower signals the credit quality of the borrower to the lender, so much so that the lender will extend a loan based on one phone call. But the conditions on who can be the guarantor reveal that only persons that can afford the repayments, that have a good credit score and that are UK home-owners (or a very strong history) will be accepted as guarantor. (https://www.amigoloans.co.uk/be-a-guarantor, retrieved 18-11-2016) Amigo loans does not trust the guarantor much for the 'signal' of credit quality, but just asks for a guarantor that will almost certainly provide recourse.

[170] Compare Mann, 1999, p. 2240.

relevant information, even when it is available somewhere in the firm.[171] Moreover, even if the borrower has private information and can be assumed to be rational, the guarantee only gives the creditor an additional claim on the guarantor, who's reliability in performing his obligation the lender will also have to assess. Except in the case where the guarantor is somehow a much more reliable party, the guarantee will signal little to the lender.[172]

However, even if the guarantor is unreliable, the guarantee may tell the lender something about the reliability of the borrower if something about the guarantee relationship will make default by the borrower towards the lender less likely.[173] The guarantee relationship may change the behavior of the debtor, for example because of a close relationship between debtor and guarantor. In such a case, the guarantee however does not act as a *signaling* device, as it doesn't signal currently known creditworthiness, but as a bonding device, improving credit quality, which will be discussed extensively in paragraph 3 below. The difference between a 'signaling device' and a 'bonding device' is subtle, but important as each has different implications. I use the term 'signaling device' for a device that signals certain factual, private and known information to a lender, whereas a bonding device changes the (future) incentives of a debtor towards a creditor. As such, a bonding device also 'signals' information to the lender, on the future behavior of the debtor, but the distinction is important.[174] Signaling creditworthiness as a function of the guarantee should, in other words, not be confused with the function of influencing creditworthiness.

In short, it is generally unsure whether the guarantee can act as a credible signal of the creditworthiness of the borrower, except in the case of a sophisticated and reliable guarantor with private information on the borrower.[175] However, the guarantee relationship may well be very able to reduce the *need* for such a signal (by reducing the information asymmetry) because the guarantee may alter the incentives of both guarantor and debtor.[176] This agency-related explanation of the guarantee, which can be referred to as the bonding function of the guarantee, should not be confused with signaling creditworthiness,[177] because the bonding function is both much more powerful and much more problematic. The bonding function will be discussed in paragraph 3.

2.2 Credit rationing

Related to the problem of adverse selection is the problem of credit rationing. Credit rationing refers to the situation in which lenders do not offer loans to certain borrowers, even if the borrowers are willing to pay higher interest rates. In their seminal paper on credit rationing,

[171] Mann, 1999, p. 2240 with reference to Langevoort, 1997.
[172] Mann, 1999, p. 2260.
[173] Mann, 1999, pp. 2260–2261.
[174] Compare Mann, 1999.
[175] Bank guarantees may for example be used as a reliable credit signal, see Mann, 2000.
[176] See extensively Mann, 1999.
[177] Compare Carlson, 1998, p. 1728: *"Signaling theory, however, has had a controversial track record because it suffers from a boundary problem. What passes as a signal in the models also turns around and affects the firm itself. That is to say, debt or a dividend policy reduces the amount of retained earnings and hence affects the value of the firm. Such policies do not merely report firm value. They change it. This is not to say that changes in firm value are not highly informative. But given the change in V, such theories cannot be viewed as pure signaling theories, but rather as a mixed theory of some kind [footnotes omitted]."*

Stiglitz and Weiss distinguish two types of rationing, occurring in circumstances under which *"(a) among loan applicants who appear to be identical some receive a loan and others do not, and the rejected applicants would not receive a loan even if they offered to pay a higher interest rate; or (b) there are identifiable groups of individuals in the population who, with a given supply of credit, are unable to obtain loans at any interest rate, even though with a larger supply of credit, they would."*[178]

A basic dogma of economics would implicate that, if demand exceeds supply, prices (in this case: interest rates) will go up until demand meets supply. In other words, the situation of excess of demand at the market interest rate should not be stable. However, Stiglitz and Weiss argue that even in equilibrium, lenders often don't raise interest rates.[179] Why lenders do not simply increase interest rates to meet demand is a question that has puzzled economists.[180] As already touched upon above, an explanation could lie in adverse selection: by increasing the interest rate for a given amount of collateral, low-risk borrowers will self-deselect while high-risk borrowers are more likely to still take the loan. Moreover, initial low-risk borrowers may start choosing higher risk projects in the course of their business. While such an increase in interest rates thus may match demand with supply, lenders may not be able to increase profit because the group of borrowers will on average have a higher chance of default. This can explain the practice of professional lenders of setting an interest at which demand of credit exceeds supply.

Two types of guarantees are associated with alleviating the problem of credit rationing. Firstly, the guarantee by an insider, such as the shareholder of a legal person, may as a form of outside collateral reduce the problems of adverse selection and the incentive effect that lie at the basis of credit rationing. Collateral may thus alleviate the problem of credit rationing, but may not be sufficient to fully eliminate it (see also paragraph 2.1 above). Besanko and Thakor for example argue that the amount of collateral required to minimize credit rationing often exceeds the wealth of borrowers (and insiders or related parties).[181] These borrowers may also lack other means to show towards the lender that they are relatively low-risk borrowers. Thus, there may be borrowers on the market that are unable to lend while they are good, low risk borrowers.[182] These could be borrowers that are not able to borrow at all, not at any interest rate (type (b) of credit rationing described above), or they may be borrowers that are turned down in their application to borrow against a certain interest rate, while other borrowers that seem similar are able to lend at this interest rate (type (a) of credit rationing described above).

Secondly, government guarantee schemes are associated with alleviating the problem of credit rationing.[183] Because some borrowers may not have the means to show towards lenders that they are indeed low-risk, states may try to step in by offering a state-backed guarantee scheme, often exclusively for a specific group such as small businesses or home owners.[184]

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[178] Stiglitz and Weiss, 1981, pp. 394–395.
[179] Stiglitz and Weiss, 1981.
[180] Neus and Walter, 2008, p. 11; Stiglitz and Weiss, 1981; Stiglitz and Weiss, 1987.
[181] Besanko and Thakor, 1987.
[182] Cowling, 2010, p. 37.
[183] See extensively: Columba, Gambacorta and Mistrulli, 2010.
[184] Credit rationing is specifically associated with small business lending for two reasons. Firstly, small businesses are less likely to have enough wealth available to offer collateral because of small asset portfolios. Secondly, risk-assessment of small business may be more difficult as information can be sparse and financial statements less elaborate and often not audited, while transaction costs in risk-assessment can be relatively high in relation to the loan size for small business loans (Beck, Klapper and Mendoza, 2010, p. 10). Therefore, state guarantee schemes are often directed at small-business lending.

Whether credit rationing actually is a factor of major importance on the loan market is contested, the empirical evidence on this is again not clear-cut.[185] It is consequently also contested that government guarantee schemes should step in to reduce credit rationing.[186] Moreover, even if credit rationing is an important factor, it is questionable whether government guarantee schemes can satisfactorily solve the problem in the sense that they promote general welfare. That government guarantee schemes can lower interest rates for borrowers and can make credit against a certain interest rate more accessible to specific groups of borrowers is obvious, but less obvious is whether this actually addresses a market failure or just entails a subsidy from the guarantor towards certain borrowers. It could very well be that lenders do not lower interest rates because the guarantee signals credit quality of the borrower itself, but because the guarantee assures the lender of an alternative source of collection.[187] In other words, it could be that lenders turned down loan applicants for the right reasons. To be able to address the market failure caused by adverse selection, the guarantor would need to have superior information on the creditworthiness of the borrowers. Otherwise, the guarantor is faced with the same problem of adverse selection.[188] The micro-economic case for offsetting negative effects of adverse selection with a state-backed guarantee scheme thus seems thin.

At the same time, it is obvious that there is a pool of loan applicants, especially consisting of small firms, that has difficulty acquiring funds.[189] The state could have many reasons to step in, such as fairness based reasons (for example distributional goals); macro-economic reasons like making credit more widely available, mitigating the effects of a credit crunch or supporting entrepreneurship and innovation by kick-starting SME-lending.[190] Whether such macro-economic and distributional arguments are valid is outside the scope of this analysis.[191] In short, state-guarantees can arguably reduce effects of credit-rationing that are perceived as negative from a distributional or macro-economic perspective by some, but they are unlikely to solve the problem of credit rationing at its source. Moreover, this thesis primarily focuses on insider guarantees, which state guarantees clearly are not.

2.3 Types of guarantees suitable for signaling

Although theory and evidence are not clear-cut, we have seen that a case could possibly be made for guarantees as performing a signaling function to reduce information asymmetries, adverse selection, and credit rationing. Which types of guarantees or guarantors could best fulfill this function?

In order to be able to signal to a lender that a borrower is of relatively good quality, the guarantor must have superior information on the borrower. As the analysis above showed, the fact that the creditor can call upon the guarantor in case of default of the debtor makes the signal more credible, but it does not make the signal true. The trouble is that, as discussed in chapter 1,

[185] Cowling, 2010, p. 43.
[186] Honohan, 2010, p. 3; see by way of illustration also: Financieel Dagblad, 8 September 2015, p. 13, "Brussel trapt niet in poging risico's weg te moffelen met nieuwe hypotheekinstelling", prof. J. van de Poel.
[187] See on guarantees as providing an alternative source of collection paragraph 5.
[188] Compare Honohan, 2010, p. 3.
[189] See for example Cowling, 2010, p. 43.
[190] Honohan, 2010, p. 3.
[191] See further Honohan, 2010; Gudger, 1998; Arping, Lóránth and Morrison, 2010; Lelarge, Sraer and Thesmar, 2010; Garcia-tabuenca and Crespo-Espert, 2008.

there are clear limits to rationality. Calculating the probability of default of a debtor is often a highly complex undertaking in the first place, which can be further troubled by a certain relationship, such as emotional ties, between guarantor and debtor.[192] It is therefore safer to state that the guarantee signals that the guarantor *believes* the borrower is of good quality. Such a signal can be valuable to the creditor if he can establish whether such a belief is based on private information of the guarantor on the debtor. If the belief is instead due to the limits that bounded rationality places on reasoning or on outward irrational behavior, for example due to emotional ties, the signal itself becomes meaningless.[193] Moreover, the lender would still have to assess whether the guarantor, if called upon, will be able to perform.

The signaling function of a guarantee can consequently be performed best by guarantees from guarantors that are likely to both have private information on the guarantor and are likely to be relatively less constrained by irrationality and bounded rationality. Although individuals that have close ties to a debtor are likely to have private information, they are unlikely to weigh it properly due to irrationality and severe bounded rationality. Factors to look for in a guarantor are, from the perspective of the signaling function, sophistication (to reduce bounded rationality), absence of emotional ties (to reduce irrationality), proximity to the debtor (to ensure information on the debtor). Sophistication can especially be found in professional guarantors that specialize in risk-assessment such as financial intermediaries (banks) and insurers. Proximity to the debtor can be found in insider guarantors, principal banks or other guarantors that have a close professional relationship with the guarantor. In short, the most probable candidate to perform a signaling function is a guarantee by a professional guarantor with some private information. Bank guarantees often fit this picture.[194]

Not only the identity of the guarantor matters in structuring a good guarantee that performs a signaling function. As Mann explains, asymmetric valuation can often make a guarantee better perform its signaling function.[195] The higher the cost to the borrower of the lender calling on the guarantee, the better the lender can rely on the signaling function of the guarantee. However, the higher the value to the lender of calling on the guarantee, the higher the costs associated to possibly opportunistic behavior of the lender (reverse-opportunism), using the guarantee opposite to the expectations of the borrower. Typically, guarantees given by natural persons to a professional lender are a good example of such asymmetric valuation, because the natural person probably values his personal assets dearly (also called the endowment effect). Guarantees given by a professional guarantor often don't profit from the benefits of asymmetric valuation, because the guarantor as a professional party is unlikely to put excessively high value on the guaranteed amount. Why a guarantee by a natural person is often valued asymmetrically in relation to the lender is easy to understand. The natural person will often not have the guaranteed amount readily available. Losing, say, € 100.000 on the guarantee may have all kinds of personal consequences that he wants to avoid. The lender however, having made a loan of say € 3 million, may not value the € 100.000 as highly as the guarantor does.[196] Moreover, if the guarantee is a dependent guarantee, the room for reverse opportunism is limited. The guarantor can probably invoke defenses from the underlying relationship, making sure the creditor cannot

[192] Heine and Janal, 2010.

[193] Although the additional means of recourse could have value of course (see further paragraph 5). In this situation, the guarantee could however benefit the creditor and debtor by a value transfer from the guarantor to them, because the irrational belief can cause the guarantor to underprice the guarantee. This is merely a distributional gain.

[194] Compare Mann, 1999, p. 2521 ff.

[195] Garvey, 1994; Mann, 1999, p. 2232 ff; Scott, 1986, p. 930.

[196] See also Baird, 1994a, pp. 2263–2264.

call upon him unless the debtor indeed owes something to the creditor and defaults. The danger of reverse opportunism is much higher in an independent guarantee relationship, in which defenses from the underlying relationship are not available to the guarantor.

This analysis of types of guarantees that would be ideal to signal credit quality, shows again why guarantees are often not particularly good at performing this function. Ideally, the guarantee would be valued asymmetrically as between guarantor and creditor, which most notably is the case involving a guarantor that is not sophisticated. However, for the signal to be reliable, the guarantor should be sophisticated, which leads to an inherent tension.

2.4 Summary

In short, guarantees have often been associated with performing a function of signaling creditworthiness of the debtor, thus reducing information asymmetries between borrower and lender, limiting the room for ex ante opportunistic behavior, reducing adverse selection problems and alleviating (effects of) credit rationing. This would suggest the guarantee reduces monitoring costs. The empirical evidence on these functions is however not clear-cut. If guarantees can indeed perform a signaling function, the best suited guarantees seem to be those provided by sophisticated guarantors with little emotional ties to the debtor, while at the same time possessing quality information on the debtor's credit quality. Most guarantees by insiders as often used in corporate finance do not fit that picture.

A guarantee may very well improve the creditworthiness of the debtor because incentives of creditor and insider guarantor are aligned through the guarantee, but that function of the guarantee is not a simple signaling function, but a bonding function. These two functions should be clearly separated for analytical purposes, especially because the bonding function is both much more powerful and much more problematic. The bonding function will be discussed in the next paragraph.

3 Reducing debtor misbehavior

When a debtor-creditor relationship is established, the creditor runs the risk that the debtor will default. This risk can be divided into two categories: risk because of opportunistic behavior because of a state of moral hazard on the side of the borrower (debtor misbehavior), and risk because of events beyond the borrower's control.[197] In a state of moral hazard, an actor does not (fully) bear the negative consequences of his behavior and consequently doesn't have the right incentives towards optimal behavior (from the perspective of the creditor). Moral hazard is generally used as a heading for agency problems.[198] Moral hazard thus refers to a state in which

[197] Greenbaum and Thakor, 2007, p. 130.

[198] Neus and Walter, 2008, p. 10; The basic idea of an agency problem is simple. As an example, take a relationship between two people: the principal and the agent. Both the principal and the agent have individual preferences. Suppose the principal wishes to delegate some decision-making power to the agent. He instructs the agent to act in the interest of the principal against a reward. The agent's own preferences, however, may diverge from those of the principal and, as a result, the agent may try and incur the reward while not exactly doing what the principal wanted him to do. Therefore, the principal may

there is incentive for an actor to act opportunistically.[199] In fact, the terms *moral hazard* and *debtor opportunism* are ultimately complicated ways of describing that a debtor will partly have different incentives than the creditor would prefer.

Ex post opportunistic behavior because of a state of moral hazard in debtor-creditor relations can be divided in two categories: (i) opportunistic default (or renegotiation) in general, and (ii) opportunistic behavior specifically related to limited liability. In the finance literature, there seems to be general acceptance that guarantees can serve to limit moral hazard by targeting opportunistic behavior by the debtor, by the guarantor, or by both.[200] Empirical work also supports this conclusion and finds guarantees are much more able to contain moral hazard than collateral by means of real security rights is.[201] Thus, the guarantee relationship can serve as a private ordering device to control ex-post opportunistic behavior. This paragraph will review the manifestations of moral hazard in debtor-creditor relationships and the ability of the guarantee relationship to control moral hazard.

3.1 Guarantees limiting opportunistic default in general

The debtor may try and exploit incompleteness of the loan contract or incompleteness in monitoring or enforcement of the contract to his advantage by forcing the creditor to renegotiate the terms of the contract, either explicitly, or effectively by forcing the creditor to accept opportunistic shortcomings. Because of bounded rationality, contracts are necessarily always incomplete.[202] The room for opportunistic default can be limited by using a guarantee relationship, bonding the interest of the guarantor and indirectly the debtor to those of the creditor.[203] The result of the guarantee relationship is that the creditor can call upon the guarantor, possibly subject to certain conditions such as default of the debtor. This aligns the interests of the guarantor with those of the creditor: performance by the debtor.

If the guarantor has certain influence over the debtor, the alignment of the interests of the guarantor with those of the creditor will also affect the debtor. If the guarantor has some sort of pre-existing relationship with the debtor such as close personal ties, the debtor will behave differently towards the lender under the influence of the guarantor. Such influence can be implicit. In the family setting, a son who borrowed money from a bank with a guarantee from his parents towards the bank may for example have strong incentives to perform towards the bank,

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want to contract with the agent and monitor the agent's behavior. However, the agent may still get away with partly acting in his own interest. In this example, we see three types of costs that the principal may incur in delegating decision-making power to an agent: (1) bonding costs (2) monitoring costs and (3) residual loss because the agent shirks (See further Jensen & Meckling 1976, p.308). Obvious examples of relationships plagued by such agency problems are employer-employee and shareholder-manager relationships. Agency problems also occur in a debtor-creditor relationship, in which the creditor invests in the debtor, thus delegating some task to the debtor that he would like to see done. Moral hazard in debtor-creditor relationships thus essentially refers to agency problems between lenders and borrowers (Greenbaum and Thakor, 2007, p. 29 ff).

[199] Schäfer and Ott, 2004, pp. 94–95.

[200] Tracht 2000, p.516 ff; Mann 1998, p.22 ff; Mann, 1999, p. 2258 ff; Greenbaum and Thakor, 2007, p. 187; compare Thakor and Boot, 2008, pp. 32–34; the latter two of which speak of 'collateral', by which they refer to both inside and outside collateral (guarantees). The explanation is thus not specifically focused on guarantees. See on opportunism extensively chapter 1.

[201] See Pozzolo, 2004; Haas and Millone, 2016; however see Blazy and Weill, 2013, reaching a contrary conclusion.

[202] See on bounded rationality and opportunism extensively chapter 1, paragraph 3.

[203] See more generally on bonding devices Mann, 1999, p. 2231; Williamson, 1983.

just because he wants to spare his parents a claim from the bank. Less obvious but also relevant is the example of a relation between a client and his principal bank (a bank with a close relation to the client). The client will probably wish to continue its relations with his principal bank that guaranteed an obligation of his and will therefore try harder not to default on this obligation towards the creditor.

This mechanism does not directly lower the cost of monitoring the debtor, but it lowers the need for monitoring and in turn the costs. The need for monitoring is lowered because the debtor has incentive not to act opportunistically towards the creditor. In other words: the risk that the debtor defaults towards the creditor because of moral hazard decreases because of the guarantee relationship.[204]

This can be conceptualized in a trust game.[205] A debtor-creditor relationship can always, at least for a small part, be modelled as a trust game in which the creditor places trust in the debtor. In the trust game, the first party, the investor, decides how much money to send to the second party, the trustee. The amount is then multiplied by a factor, after which it is up to the trustee to decide how much money he sends back to the investor.[206] In this game, it is assumed that no legal system is in place through which the investor can claim the investment back. He has to rely on trust. The investor has to choose whether to invest and how much. The investor incurs risk by placing trust in the trustee. However, in doing so, the investor has a chance to make a profit. We can call this dilemma the trust problem. Williamson has shown that complex governance structures are therefore employed by parties to contain the problem of opportunism.[207] The trust problem can possibly be solved by providing a 'hostage' as a credible commitment of the trustee.[208] This game can be called the Hostage Trust Game.[209] Such a hostage can take many forms.[210] A guarantee of (part of) the amount of the investment is a good example of such a 'hostage'. Empirical testing of the hostage game has shown that hostage posting has a strong effect on trust and cooperation.[211]

The hostage-function of a guarantee can be especially important to a creditor in small closely held corporations where the shareholder is also the main 'asset' in terms of human capital of the company. If a company is highly dependent on the specific skills of the shareholder, the creditor may want to make sure the shareholder stay committed. In the absence of a guarantee relationship, the shareholder could threaten the creditor to divert his or her human capital to another firm if the creditor does not want to renegotiate. Although this would effectively wipe out the equity stake of the shareholder, there is just as much at stake for the creditor. Especially

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[204] See also Tracht 2000, p.516 ff; Mann 1998, p.22 ff; Greenbaum and Thakor, 2007, p. 197 ff.

[205] A 'game' is defined by Von Neumann and Morgenstern, who arguably laid the foundations of game theory from 1943 onwards, as: "any interaction between agents that is governed by a set of rules specifying the possible moves for each participant and a set of outcomes for each possible combination of moves." Heap & Varoufakis 2004, p.4; Neumann & Morgenstern 1972, p.46 ff. Using such a broad definition, any social situation that results in a transaction, for example any principal-agent relationship, can be described as a game to be studied using game theory. Game theory has, however, been particularly powerful in providing models to study more complex human interactions in which strategy matters: Cooter & Ulen 2013, p.33. A strategy can be described as a plan of how to act depending on the actions of others. See also on the trust game Snijders, 1996, p. 46 ff.

[206] See extensively Snijders 1996, 46 ff.

[207] See extensively Williamson, 1996.

[208] Williamson 1983, p.177; Snijders 1996, p.131.

[209] See on the Hostage Trust Game: Snijders 1996, p.130 ff.

[210] See for some examples: Raub 2004.

[211] Snijders and Buskens, 2001; Raub, 2009.

if equity is already virtually wiped out, the shareholder may have a strong bargaining position. A shareholder guarantee would mitigate this incentive for opportunistic behavior.

Which types of guarantees would be most suitable to be used as a governance device to limit such opportunistic renegotiation or default? The creditor generally has the strongest position with an independent, non-subsidiary guarantee ('at first demand'). Any perceived threat of opportunistic behavior by the debtor would be neutralized by the possibility of the creditor to call upon the guarantor. A dependent guarantee offers less protection as the guarantor, possibly in collaboration with the debtor, has more room to opportunistically default or renegotiate, for example unjustifiably arguing that there is a defect in either the guarantee contract or in the relationship between the debtor and the creditor. Likewise, a subsidiary guarantee offers the creditor generally less protection against an opportunistic debtor than a non-subsidiary guarantee. When a subsidiary guarantee is used, the debtor can still opportunistically claim there is no default, thus refraining the creditor from claiming under the guarantee. With a non-subsidiary guarantee, such a defense cannot be used against the creditor, as default of the debtor is not a prerequisite for claiming on the guarantor.

On the other hand the guarantee relationship opens up new possibilities for opportunistic use by the creditor. An independent guarantee can somewhat resemble payment upfront by the debtor to the creditor (*pay first, argue later)*, but this is subject to conditions as stipulated in the guarantee.[212] Of course, such prepayment reverses the situation and makes the debtor and guarantor vulnerable to reverse opportunism.[213] Likewise, a non-subsidiary guarantee involves an increased danger of reverse opportunism compared to a subsidiary guarantee. If the expected

[212] The substantive function of shifting risk from the creditor to the debtor is central to understanding the mechanics of the independent guarantee in practice. Compare Katz, 2000. From this function, one can understand that independence is in practice not always to the detriment of the guarantor, but to the detriment of the debtor. Even more so, an important reason for the development in practice of the independent, non-subsidiary guarantee was driven by interests of the guarantor. The traditional dependent, subsidiary guarantee did not fit in with the characteristics of institutional guarantors, often banks. Issuing such a guarantee would mean that the bank would have to calculate ex ante the risk that a debtor would default, which involves actuarial activities. Furthermore, before paying under the guarantee, the bank would have to determine whether the debtor has defaulted and whether the debtor may be able to invoke defences. This involves a factual and legal research activity, the expertise for which is not traditionally present in banks, Dolan, 1993, pp. 12–13. It is true that the guarantor of an independent guarantee cannot invoke defences that the principle debtor would be able to invoke, but the guarantor will in turn claim reimbursement from the debtor (if the debtor is the person instructing), even if the debtor would have been able to invoke defences towards the creditor, and will usually demand security upfront for a possible claim to reimbursement, as the economic function of the guarantee is often to shift risk from the creditor to the debtor – and not to the guarantor. It is of course possible to set up the construction in such a way that the risk is shifted to the guarantor, but this is certainly not common practice with independent guarantees, Bertrams, 2013, pp. 8, 216; Mann, 2000 and not the reason for their development in practice. There are various reasons for this. The risk for the guarantor would be very large if the claim for reimbursement from the debtor is unsecured. If we take the prevailing type of independent guarantee, the guarantee on first demand, the guarantor would be to the tender mercies of the debtor. It would be very hard for the guarantor to calculate the risk involved in such a guarantee, and thus hard to imagine that a professional guarantor would engage in this business without full security for its, possibly future, claim for reimbursement. Add to this that the vast majority of independent guarantees is issued by professional guarantors, which in turn has to do with the fact that non-professional guarantors simply cannot offer the same security, both because of unknown financial stability and possible ties with the debtor, Bertrams, 2013, p. 9. Of course, this does not preclude the use of independent guarantees to shift risk from the creditor to the guarantor. Because an independent guarantee generally gives the creditor more security than its dependent counterpart in the same case, creditors may insist on an independent guarantee even if the idea is to shift risk to the guarantor. The substantive function of shifting risk defines the core practical difference between the independent guarantee and its dependent counterpart. The dependent guarantee shifts risk from the creditor to the guarantor, the independent guarantee is generally set up to shift risk from the creditor to the debtor. Some have pointed out the resemblance between independent guarantees and insurance, but it should be noted that, from the perspective of the function, shifting risk from the creditor to the debtor, the guarantor should not be understood as being an insurer, but rather as intermediary.

[213] Katz, 2000; compare Mijnssen and Boll, 1984; compare also Bertrams, 2013, pp. 13; 71 ff.

cost of the chance of such reverse opportunism is sufficiently lower than the reduction in costs effectuated by limiting opportunism of the debtor towards the creditor, the independent non-subsidiary guarantee can entail a net cost saving to the parties. If not, some degree of subsidiarity or dependence may help to strike a better balance.

The guarantee relationship can be seen as an economic equivalent of a hostage.[214] From the literature on hostage taking, one can infer that from the perspective of opportunism, guarantees that are especially valuable to the guarantor but not to the creditor make economic sense as hostages.[215] This can explain the ubiquitous use in practice of pure-leverage guarantees, sometimes even for small amounts, for loans to small corporations. As Mann argued, people are likely to place extremely high value on their personal assets.[216] If a guarantor as a natural person guarantees a small amount towards a very wealthy creditor (such as a bank), the guarantor is likely to place much higher value on the amount guaranteed than the creditor. Thus, the condition of asymmetrical valuation is met.[217] A good hostage strikes the right balance between the risk of opportunistic behavior by the debtor, and the risk of reverse opportunism (expropriation of the hostage) by the creditor. In a condition of low valuation of the guarantee on the side of the creditor, the risk of reverse opportunism is relatively low. Absent asymmetrical valuation, a good hostage can also be one that is valued equally by debtor and creditor if the creditor is less likely to act opportunistically, for example because of a good reputation.

In short, the guarantee can be used as a hostage, a private ordering device, in Williamson's words a 'governance structure',[218] to deter the often severe problem of opportunistic default or renegotiation in a debtor-creditor setting. The type of guarantee that is best able to reduce opportunistic default or renegotiation in general by the debtor is clearly an independent guarantee at first demand. However, depending on the danger of reverse opportunism in the specific case, some degree of subsidiarity or dependence might strike a better balance. More specifically, the hostage model shows asymmetric valuation makes a good guarantee in this context.[219]

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[214] Williamson analyzed the logic behind exchanging hostages and applied this to economic equivalents of hostages in relational contracts (Williamson 1983). The guarantee relationship can be seen as an economic equivalent of a hostage (Mann 1999). Indeed, it is a rather obvious equivalent as the guarantor acts as contractual hostage and the origin of suretyship in inter alia Roman law is closely related to hostage taking, see also Garvey, 1994; Scott, 1986, p. 930.

[215] As Cooter and Ulen explain, medieval kings used to exchange hostages in order to refrain each other from starting a war. If one party would start a war, he would not see his hostages returned. According to Cooter and Ulen, a good hostage is one that is valued higher by the hostage-giver than the hostage-taker. If the hostage is too valuable to the hostage-taker, he has incentive to start war and keep the hostage. This is often called 'reverse-opportunism' or 'expropriation risk' in the hostage literature (see for example Garvey 1994, p.245; Williamson 1985, p.177). Cooter and Ulen give the example of a king that can choose to either give his son or a valuable diamond as a hostage. If we assume the king values both equally, the son makes the better hostage, because the son is probably not highly valued by the rival king, whereas the diamond is. Thus, asymmetrical valuation makes a good hostage (Cooter & Ulen 2008, p.242; see also Mann 1999, p.2232). Or as Williamson puts it more eloquently: *"Specifically, a king who is known to cherish two daughters equally and is asked, for screening purposes, to post a hostage is better advised to offer the ugly one."* (Williamson 1996, p.130).

[216] Mann, 1998, p. 23.

[217] As the hostage literature shows, asymmetrical valuation however does not completely defeat the problem of reverse opportunism. The creditor can threaten to seize the hostage (take recourse to the guarantor), even though he does not value the hostage highly. If the value of the hostage is sufficiently low for the creditor, such a threat may not be very credible, but the debtor and guarantor may still not want to take chances, Garvey 1994, p.255.

[218] Williamson, 1996.

[219] See also Mann, 1999, p. 2232 ff; Baird, 1994a, pp. 2263–2264.

3.2 Opportunistic use of limited liability and the role of guarantees

The discussion of moral hazard has so far focused on moral hazard problems in general. When the debtor is a legal person with limited liability,[220] more specific forms of moral hazard may present themselves. Such moral hazard originates in the fact that the debtor does not bear the full downside risk of his project.[221] The most obvious situation in which the borrower does not bear the full downside risk is when the borrower is incorporated as a limited liability company in which the management and shareholders decide what happens.[222] The fact that limited liability creates moral hazard problems is widely recognized.[223] The principle of limited liability generally dictates that shareholders are, in principle, only liable up to the equity they contribute to the company. Management is in principle not liable at all, absent liability for mismanagement. Management only has their job at stake, and the remote possibility of liability for mismanagement. These facts combined can give shareholders and managers incentive to pursue projects that have a negative net present value.[224] The creditor who considers making a loan to the legal person with limited liability will want to limit the risk of opportunistic use of limited liability. The guarantee relationship limits such behavior towards the creditor by aligning the interests of the guarantor with those of the creditor, being performance by the debtor of the obligations arising from the contract with the creditor.

The guarantee as a bonding mechanism can be especially useful to smaller, closely held companies, also because other devices for dealing with moral hazard, such as secured credit and contractual covenants may work less well than in lending to large, publicly held companies, while the shareholder-creditor agency problem is likely to be of a greater extent in smaller, closely held companies.[225] Mann argues further that the leverage the guarantee provides to the

[220] Also absent limited liability, a debtor may not always bear the full downside risk of his actions because of insolvency law rules on a fresh start. See also Hahn, 2006. In most legal systems, legal persons do not survive liquidation in insolvency, whereas natural persons do survive. Many systems grant natural persons, often after a specific procedure, a 'fresh start', meaning they effectively shed off debts still outstanding after liquidation. The prospect of such a fresh start may incentivize the debtor towards underinvestment, overinvestment and inadequate effort supply. The design of the procedure that grants a clean start will probably be aimed at limiting such unwanted incentives, but may not be able to fully eliminate them. This, from the perspective of moral hazard somewhat comparable situation is not specifically considered further.

[221] See also Easterbrook and Fischel, 1985, p. 104; Buckley, 1992, p. 246 ff.

[222] Easterbrook and Fischel, 1985, p. 98.

[223] Bainbridge, 2005, p. 95; Barneveld, 2014, p. 50; Easterbrook and Fischel, 1985, p. 104; Neus and Walter, 2008, p. 10; Millon 2007, p.1342; Buckley, 1992, p. 246 ff.

[224] Or not pursue projects that have a positive net present value, or generally not put enough effort in making the projects of the debtor succeed, or to shift assets away to related parties before bankruptcy. The interests of management may however not completely coincide with those of the shareholder. This managerial agency problem has become the primary focus of agency-cost literature in the corporate setting. However, in small, closely held firms this problem is often non-existent because of close ties between managers and shareholders (see extensively Tracht 2000). In the smallest firms the shareholder and manager are often the same person. Even in larger companies, the managerial agency problem has become less problematic because it has, after decades of scrutiny, largely been addressed (Rock 2013). Corporate law has, across jurisdictions, become more shareholder-oriented (Hansmann & Kraakman 2001; Hansmann & Kraakman 2012.). In case of minimized or non-existent shareholder-management agency costs, the tension between the corporation and its creditors increases (Rock 2013, p.1928; John & John 1993, p.951.). As Rock puts it: 'incentivizing managers to think like shareholders intensifies the shareholder-creditor problem', and there is compelling evidence that this mechanism works in this way (Rock 2013, p.1935; compare Ang 1991; Ang 1992; Blumberg & Letterie 2007). Thinking like shareholders, managers have incentive to transfer wealth from creditors to shareholders. As a firm nears insolvency, the tension between shareholders and creditors increases, as their interests may diverge further. Shareholders may become interested in inefficient investments that are likely to harm creditors (Mann 1997, pp.649–650; Smith & Warner 1979, pp.118–119.). See on expected value analyses in relation to limited liability also Bakker and Weijs, 2019.

[225] Tracht 2000, p.524 ff.

lender is not only especially useful in small-business lending, but also more powerful than secured credit, because when the guarantor is a natural person, he will be likely to take loss of personal assets such as his home extremely serious. He may take such a loss even more seriously than a failed business.[226] In terms of preference ranking,[227] he is likely to have a very high preference for keeping personal assets. Even a personal guarantee of a small fraction of the loan may therefore be sufficient to provide the lender with the leverage needed to align the incentives of the guarantor with his. Why people are highly averse to any personal loss can inter alia be explained by what is called the *endowment effect* in behavioral economics.[228] However, as explained above, also absent personal guarantees, the possibility of personal liability because of tort law rules on shareholder and manager behavior in times of distress may already deter undesirable behavior to some extent.

The function of mitigating negative effects of limited liability is usually performed by dependent guarantees, because subsidiarity and dependency are usually no obstacle to performing the function of reducing overinvestment.[229] An independent guarantee can also reduce moral hazard, but may do too much.[230]

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[226] Mann 1998, p.19.

[227] See chapter 1 paragraph 3 on preference rankings.

[228] Korobkin, 2014, p. 300 ff.: "The term "endowment effect" stands for the (…) principle that people tend to value entitlements more when they are endowed with them than when they are not."

[229] Important for the function of policing moral hazard is however the complex relationship between the amount guaranteed, the amount of the principal debt, and the wealth of the guarantor. If the creditor extended 100 in credit, the guarantor guaranteed that up to 20, and the debtor only has 30 in assets left, the creditor is undersecured. Such a guarantee will do little or nothing to remedy moral hazard, at least not at that point in time, because changes on the debtor's wealth will not directly affect the guarantor's potential liability on the guarantee. In fact, the temptation to overinvest may become stronger because there is more at stake. The same applies when for example the creditor extended 100 in credit, the guarantor guaranteed that in full, the debtor only has 10 in assets left, and the guarantor himself only has 20 in assets. Now, the guarantor is virtually bankrupt, and changes in the wealth of the debtor won't immediately change that (these examples are not merely theoretical, nor rare. Mann points out, based on interviews with bank managers, that guarantees are often issued by business owners even if they do not have the wealth to cover their potential liability under the guarantee, see Mann, 1998, p. 22 ff; Moreover, my experience with guarantees in the Netherlands is that they are often issued for relatively small parts of the outstanding debt (compare also Haentjens, 2010, pp. 419–420 for reasons why this happens), and when the debtor defaults, the guarantor often has to be called upon for the full amount of that guarantee, meaning the creditor was undersecured.). In short, partial guarantees and guarantees by virtually bankrupt guarantors can lead to counter-productive results in mitigating moral hazard.

[230] Dependent guarantees shift risk to the guarantor, thereby targeting behaviour of the guarantor. In case the debtor is a limited liability company, a dependent guarantee can thus target decision makers in the company, such as directors and shareholders, thereby indirectly limiting opportunistic behaviour by the debtor. In case the guarantor has no official decision making role in the debtor, shifting risk to the guarantor can still influence behaviour of the debtor, for example because the guarantor has influence on the debtor through his personal ties, such as in family relations. Recall the difference between dependence and independence. Dependency of the obligation arising from the guarantee contract on the obligation arising from the primary relationship between debtor and creditor has (in most legal systems) the consequence that the guarantor can invoke defences that the debtor would be able to invoke. Dependency usually also has the consequence that the creditor cannot separately assign his right on the debtor to another without also transferring his right towards the guarantor. In other words, the dependent right 'follows' the primary right. Independence in this regard means that the creditor can call upon the guarantor, independent of whatever defence the debtor would have been able to invoke to the guarantor, and can assign the rights on the guarantor and the debtor respectively, independently of one another. (Independence of a guarantee usually not only relates to independence of the underlying relationship, but also independence of the relationship between the debtor and the guarantor. The consequence of this independence is that the guarantee obligation is not affected by defects in the relationship between the guarantor and the person instructing the guarantor to issue the guarantee, often the debtor.) An insightful way to conceptualize the consequence of a dependent guarantee relationship as opposed to an independent guarantee relationship is that the dependent guarantee relationship unifies, as far as the creditor is concerned, the person of the debtor (and his patrimony) with the person of the guarantor (and his patrimony). If he has a claim on the debtor, he can also pursue this claim on the guarantor. The flip side is that, if the debtor can raise defences, the guarantor can as well. Note that a dependent guarantee relationship would thus be sufficient to counter the adverse effects of limited liability as far as the creditor is concerned. The problem with limited

From a different perspective, small guarantees can be most valuable in performing the bonding function. As already discussed in paragraph 3.1 above, asymmetric valuation as between lender and guarantor makes a good guarantee.[231] A small partial guarantee can perform this function well, because the partial sum may still be perceived as high by the guarantor, whereas it is low from the creditor's perspective, especially compared to the loan amount (for example a partial guarantee of € 100.00 in relation to a € 3 million loan).

Various types of moral hazard specifically related to limited liability rules can be identified: overinvestment (and its counterpart, underinvestment), inadequate effort supply and asset shifting. As discussed, these types of moral hazard all originate in the fact that the debtor (or: person behind the debtor) does not bear the full downside risk of failure by the debtor because of the protection of limited liability. In as far as the guarantee relationship transfers downside risk to relatives of the debtor or to stakeholders in the debtor, this problem can be mitigated for all four types discussed below, though dependent on the circumstances.

3.2.1 **Overinvestment**

The problem of overinvestment is the problem that borrowers may have inefficient incentives to, after they have already issued debt, issue more debt, dilute assets or substitute assets for more risky assets. This can be attractive because the downside risk is shared with the older debt-holders.[232] This problem especially becomes relevant if the borrower is already materially

liability (and insolvency law rules on a fresh start) is, to the creditor, that the debtor does not fully bear the negative consequences of his behaviour. With guarantees by stakeholders in or persons related to the debtor, this cause can be (up to a point) neutralized as, to the creditor, the guarantor and the debtor essentially become one person with one patrimony. The independent guarantee can also be used to neutralize the cause of the problem to the creditor (that the debtor does not bear the full downside risk), but does much more than unifying the patrimonies of creditor and debtor. Although a dependent guarantee would already suffice to overcome the problems related to limited liability, the independent guarantee goes further in the sense that it gives the creditor a much stronger position than just being able to treat the debtor and guarantor as one person. The creditor can, independent of whatever the debtor can invoke against him, call upon the guarantor. In short, an independent guarantee can be used for the purpose of limiting the problems of underinvestment, overinvestment and inadequate effort supply, but goes beyond this purpose. There is a major trade-off of independence. Adherence to the principle of independence means the creditor can claim under the guarantee even if the debtor would have been able to invoke defenses from the underlying relationship between the creditor and the debtor. This is an important reason why the guarantor almost always secures his claim on the debtor. The debtor is now at risk of opportunistic use of the guarantee by the creditor. Again, it is instructive to look at this as a pre-payment: pay first, argue later, but in case of an independent guarantee subject to conditions as stipulated in the guarantee. The party that pays first runs the risk of opportunistic behavior by the other party. In effect, the debtor becomes creditor and vice versa. The difference with pre-payment is however that the relationship is now intermediated by a middleman, the guarantor. Depending on the precise form of the independent guarantee, opportunistic behavior of the creditor may be limited by setting certain requirements for invoking the guarantee. As to subsidiarity, adherence to this principle should not be problematic to the function of limiting overinvestment, underinvestment and inadequate effort supply either. Subsidiarity, simply put, just refrains the creditor from directly calling upon the guarantor without going to the debtor first. The cause of the incentive for overinvestment, underinvestment and inadequate effort supply is however that the debtor does not bear the full downside risk of failure by the debtor. In case of such failure, subsidiarity does not prevent the creditor from calling on the guarantor. The dependent, subsidiary insider guarantee can serve the functions of limiting overinvestment, underinvestment and inadequate effort supply. If these are the main concerns of the lender, a dependent, subsidiary guarantee may be the best option. If instead opportunistic default and renegotiation by the debtor are more generally a concern, an independent, non-subsidiary guarantee may be better, given this benefit outweighs the expected cost of reverse opportunism.

[231] See also Mann, 1999, p. 2232 ff; Baird, 1994a, pp. 2263–2264.

[232] See generally further Jensen & Meckling 1976; Barneveld, 2014, p. 52; Adler, 1995, p. 591 ff; Triantis, 1993, p. 910 ff; Buckley, 1992, p. 246 ff.

insolvent. A guarantee can, under circumstances, help to mitigate this problem. Of course, reality is always more complex. There may be other investment opportunities with a different return and risk that make this particular investment irrational for the shareholder. The point to be made should however be clear: shareholders may, especially near insolvency, have incentive to overinvest, at the expense of creditors.[233]

This almost classic problem of overinvestment certainly has appeal on paper and has been widely discussed in the academic literature, but may not always be significant in practice.[234] There is a difference between what is rational for shareholders to do in times of financial distress, and what the company actually decides to do. This difference can be ascribed to three causes: (1) shareholders and managers, especially in small companies, may be influenced by other factors than just share value; (2) shareholders/managers do not operate in a legal vacuum and (3) the overinvestment problem rests on assumptions that are sometimes implausible.

To start with the first, shareholders may not only take the expected return on each transaction into consideration, for example because of other rational concerns or because of irrational behavior. In small companies, shareholders will probably have personal relationships with other stakeholders such as business partners and employees. In such a case, it is less likely a shareholder will put his reputation at stake by overinvesting in times of financial distress. Also in larger companies, a shareholder may care about his reputation.

Moreover, the shareholder does not operate in a legal vacuum. There is always the chance of tort liability, though generally such 'veil piercing' is rare. By overinvesting, the shareholder/manager thus takes the risk of potential liability while any return on the overinvestment is unsure. Behavioral insights tell us that people are generally risk averse, sometimes preferring not to pursue an investment that has a net benefit but a low probability of a relatively large loss, see for example Williams on 'ambiguity aversion' and the 'certainty effect'.[235] There may also be contractual devices (other than insider guarantees) in place between the creditor and the debtor that deter overinvestment (*covenants*[236]). Barondes for example argues that evidence shows overinvestment is not a significant problem, in his view due to the mitigating role of contractual covenants.[237]

Additionally, managers of the company may, depending on the legal system in place, have incentives to resist pushes for overinvestment by shareholders.[238] Managers that approved investments with clear negative net benefits in times of financial distress may face personal liability for (part of) the debts of an insolvent company. As managers will probably be very averse of loss of personal assets, this incentive can be strong, although dependent on the specific

[233] See also Stiglitz, 1971; Barneveld, 2014, p. 52; Daigle and Maloney, 1994.
[234] See extensively R. de R. Barondes, 1998.
[235] Williams, 2014, p. 344 ff.
[236] See on covenants Greenbaum and Thakor, 2007, p. 184: *"Covenants are a negotiated part of loan agreements. Warranties verify certain statements by the borrower at the date of execution of the loan agreement. Covenants carry forward the warranties and establish the borrower's ongoing obligation to maintain a certain status for the loan's duration. Covenants set minimum standards for a borrower's future conduct and performance and thereby accelerate the loan in the event of untoward developments. Violation of a covenant creates an event of default and gives the bank the right to ''accelerate'' the required repayment."*
[237] R. R. de Barondes, 1998; *Adler in turn argues preference law mitigates the overinvestment problem:* Adler, 1995. See on the role of covenants further paragraph 3.3 below.
[238] See also R. R. de Barondes, 1998, p. 59: *"Managers who realize insolvency is likely to result in the termination of their employment thus have substantial personal incentives to avoid strategies that increase the probability of financial distress."*

liability regime.[239] However, the role of directors' liability insurance should not be underestimated. It has become more and more normal, especially in larger corporations but also in smaller ones, for the corporation or manager himself to take out liability insurance that covers potential tort liability of the directors. Apart from the danger of reputational damage, the incentive effects of manager liability can be undone by such insurance.

The strongest argument against the overinvestment problem is probably that it rests on assumptions that are somewhat implausible. In reality clear-cut figures on chances of success are usually not available. Of course risk-assessments are made, but such an assessment will feature different scenarios and reality will probably not even fit one of the scenarios. The simple choice to overinvest in order to maximize shareholder value at the expense of others, does not present itself as such.[240] These points that question the relevance of the theoretical overinvestment problem are also supported by some empirical evidence. Barondes finds, reviewing empirical studies, that the evidence does not show that excessive risk-taking in the period before bankruptcy occurs often.[241]

Although this rebuke of overinvestment is appealing, one should also not attach too much weight to it. The incentive to overinvest is undeniably present because of limited liability and is undeniably exaggerated near insolvency, whether clear opportunities to overinvest present themselves or not. That means that the risk-appetite of shareholders undeniably higher than it should be, especially near insolvency. Clear opportunities to embark on overinvestment may not present themselves, but the incentive to overinvest is still likely to be reflected in day to day decisions that have to be made, including decisions on dividend payments, decisions on the date of filing for bankruptcy, decisions on the type of assets to acquire etcetera.

Moreover, it can be observed that managers often don't make the right decisions in times of financial distress. There is some recent research in behavioral economics that relates this to *overoptimism*. Managers often underestimate the possibility of bankruptcy and overestimate their ability to avoid it.[242] Overoptimism is believed to be of especially strong influence on decision making by managers.[243] Dickerson therefore argues the law should give managers incentive to timely file for bankruptcy. Overoptimism should however not be confused with overinvestment. Overoptimism is irrational whereas overinvestment is rational from the perspective of the debtor. Though the guarantee may be able to remedy overinvestment by giving the guarantor other (rational) incentives, the guarantee may do little to remedy irrational overoptimism.

In as far as *overinvestment* is a problem, the guarantee relationship is an obvious device to remedy the problem, at least as far as the guaranteed lender is concerned. The guarantee relationship shifts (some of) the risk of default of the debtor to the guarantor. If the overinvestment problem is created by the characteristics of limited liability, shifting risk to decision makers (managers or shareholders) in the limited liability company can remedy

[239] Mann 1998, p.19; see differently Tracht, who mentions yet another shareholder-creditor agency problem, related to overinvestment. Shareholders that are virtually already wiped may have incentive to keep the firm from filing for bankruptcy, because they want to keep an option of a turnaround in place. Tracht, 2000, p. 505. However, this would only be true absent liability rules.
[240] Compare LoPucki, 2004.
[241] R. R. de Barondes, 1998, pp. 60–62.
[242] Dickerson, 2003; see also Ang, 1992, p. 191.
[243] Greenfield, 2014, p. 524.

incentives for overinvestment. In the example above, making the shareholder guarantee the lender's claim will undo the adverse overinvestment incentives of the shareholder.

Important to stress is that not every guarantee solves the problem of overinvestment. The relationship between guarantor and debtor is crucial.[244] If the debtor does not somehow have to internalize the risk that the guarantee is called in, his incentives won't change because of the guarantee relationship. A relationship that makes the debtor internalize (some of) the risk that the guarantor is called upon is for example a family relationship, a shareholder-company relationship or a relationship in which the guarantor has security for his (contingent) recourse or subrogation claim. If any such relationship is absent, the debtor may not care much whether the guarantee is called upon by the creditor. The only effect this will have as far as he is concerned, is that the creditor's claim is replaced by a recourse or subrogation claim of the guarantor.

Moreover, it should be stressed that it highly depends on the circumstances whether the problems are indeed solved, even with an insider guarantee. In practice, guarantees of a shareholder are often granted for *a part of* the total debt of the limited liability company. If the company is already in serious trouble, the guarantee for a small part may actually make the shareholder more likely to 'gamble for resurrection': if he does nothing or pursues normal investments, he will be liable under the guarantee anyway, if he places high risk gambles, there may at least be a chance of a turnaround (at least, that's what he may believe). In that sense, the guarantee may prevent the shareholder or director from filing from insolvency in time. [245] Filing for insolvency would mean walking away from the gambling table and taking your loss, something that people are generally not always good at.

Next to partial guarantees, the same mechanism can happen with full guarantees when the guarantor is virtually insolvent at a certain point in time as a result of his guarantee obligation. He will be indifferent to further losses on the guaranteed sum, whereas bankruptcy of the debtor will trigger the guarantee obligation and push him into bankruptcy: ideal circumstances for both rational and irrational overinvestment. In that sense, guarantees can lead to more overinvestment instead of less. Absent the guarantee, the shareholder or managers may have ended the business at an earlier stage without incurring personal losses. Because of a guarantee by the manager or shareholder, there may be incentive to gamble for resurrection to prevent losses of personal assets.

[244] Compare Mann, 1999, p. 2261.

[245] Consider the following numerical example. A bank extends a line of credit with a total of € 1 million, guaranteed by the shareholder and director with a maximum of € 100.000. The bank has real security rights (pledges, mortgages), but let's assume that at a certain point only € 700.000 can be obtained through foreclosure on these rights. This means the bank would, in case of insolvency, have an unsecured claim of € 300.000. Assume further that the pay-out on unsecured claims in insolvency will be 0%. What are the incentives of the shareholder/director? In case he files for insolvency, he is certain to be liable towards the bank for € 100.000. If however an investment opportunity comes up that has a (highly) negative net present value, but which provides some small chance of turnaround, this may seem attractive. He thus has incentive to gamble with creditors' money, instead of filing for insolvency. As long as the bank is unsecured (in terms of real security rights) for € 100.000 or more, the guarantor will be certain to lose € 100.000 in case of insolvency. He may want to prevent this at all costs (mostly not even his own costs), even more so than absent a guarantee, where the owner/director only has his job and business to lose.

3.2.2 **Inadequate effort supply**

Another type of moral hazard is that shareholders and managers may suffer from a condition of *inadequate effort supply,* which can also be seen as a type of underinvestment.[246] If the company is highly leveraged, the borrower may have less incentive to spend time and effort in properly managing the company.[247] The idea is that, if the company is highly leveraged and hardly any equity is invested by the shareholders, a manager/shareholder may not have the right incentives to do whatever it takes to maximize profits and reduce risks.[248] In such a case, the manager/shareholder does not necessarily have incentives in the wrong direction, as is the case in overinvestment, but his incentives are not strong enough. As Mann quotes one of the bank risk managers interviewed by him:

> *"The fact that [the potential guarantor] did not have a lot of non-business assets would not be a reason to make that exception [that is, to make the loan without taking a guaranty.] Even then, I still want to tie that individual to that business. Generally speaking, if the individual were not going to be as financially committed to the business as I am, if they are not willing to put their whatever on the line, I'm going to be a bit dubious ..."*[249]

Or as a credit administrator for small businesses working at a bank puts it:

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[246] See on underinvestment extensively: Myers, 1977; see also Tracht, 2000, p. 504; Adler, 1995, p. 598 ff; Franks and Torous, 1989, p. 765. If an investment opportunity has a net present value and low risk, the borrower may, especially in distressed circumstances, not be interested. If a company in severe distress has an opportunity to earn 20 with an expected success rate of 95% by investing 17, the shareholders may not be interested in this opportunity as they will still be (virtually) wiped out. This is also referred to as the problem of debt overhang. Related to this is the incentive for managers to be pre-occupied with keeping their job by keeping the company out of liquidation, but less concerned with the actual returns of specific investments (Rose-Ackerman, 1991, p. 282). This may also lead to underinvestment, which can be hard to police. The problem of underinvestment is, compared to overinvestment, less well policed by tort liability rules, even absent liability insurance, as not pursuing an investment that has a positive net present value is less obvious and much harder to proof ex post than a pursued investment with a negative net present value gone wrong. An oversimplified reply to the underinvestment problem is that the shareholder to whom the investment opportunity with a net present value presents itself, could simply spin-off a company to pursue this investment, thus avoiding the problem that he does not enjoy the possible upside of the investment. However, in reality, spinning-off is not always simple, especially if the 'investment opportunity' is merely continuing the current operations of the company. Underinvestment is however usually not of much concern to lenders, because lenders generally prefer their borrower to engage in lower risk projects than the borrower itself would prefer. The reason why is simple, the lender just wants the borrower to service the loan, and has no further stake in the upside of the borrowers projects. The borrower on the other hand, will want to service the loan and make some money on top of that, and thus almost by definition have a higher risk preference. Theoretically, things can change in distress, as the numerical example above showed, but this does not seem of much practical importance. That is mainly because the shareholder in the example does not have strong incentives towards underinvestment, as the investment will still make the company money and thus a chance of better times. The shareholder just does not gain directly from this particular investment. Of course, he may not pursue the investment but invest the same 17 in an investment opportunity with a high risk and possibly high return but lower net present value, which is problematic. But that is the overinvestment problem. In as far as underinvestment is a problem from the perspective of the creditor, which seems generally unlikely, the guarantee can obviously remedy the problem by infusing the guarantor with the creditor's risk preferences. Again, as with overinvestment, whether this works from the perspective of the creditor depends on the relationship between the amount of the loan and the guaranteed amount, and on the wealth of the guarantor.

[247] Greenbaum and Thakor, 2007, p. 204.

[248] see for examples Greenbaum and Thakor, 2007, p. 204.

[249] Mann, 1998, p. 24, quoting from an interview with Michael Stoudt, Senior Credit Officer and Risk Manager at BankAmerica. Other interviews referred to by Mann contain comparable quotes.

> *"[the purpose of the guarantee is that] you've got him [the guarantor] standing behind it saying 'I won't walk away from it because this is my life.'"*[250]

Inadequate effort supply can also be more subtle than actually walking away from a business.[251] Someone that owns all the shares in two businesses may for example at some point focus more on one of the two because he perceives the stakes in that business higher, which won't make the creditors of the other business very happy. Inadequate effort supply could in principle be governed by shareholder/director tort liability rules, but the scope of such rules is generally limited (not pursuing worthwhile investments is often for example not governed by such rules) and their application often involves time-consuming litigation because such rules are generally not bright-line rules. The guarantee transfers risk of default to the guarantor or manager, and thus increases the stakes for him or her.

3.2.3 **Asset shifting / asset stripping**

Overinvestment, underinvestment and inadequate effort supply may partly explain the role of the guarantee relationship. Another, much more straightforward type of moral hazard that can be related to limited liability is that of asset shifting, or somewhat less neutrally put: asset stripping. When approaching bankruptcy, a debtor may try to save his belongings by shifting them opportunistically to related parties, instead of handing them over to the bankruptcy trustee, possibly trusting the related party to return the favor at a later point. This incentive exists because of limited liability rules. How large the deficiency in bankruptcy is, does generally not matter to the debtor or its shareholders, because bankruptcy will erase the debts (or the legal person), and shareholders can in principle not be held liable. A corporation may therefore want to benefit the shareholders, managers or loyal employees by shifting assets to them prior to bankruptcy. A natural person may benefit his friends or family in this way. A guarantee by those shareholders or family members can neutralize the incentive to shift assets to them, or to shift asset to others in as far as this results in the debtor not paying the guaranteed loan.

This type of opportunistic behavior could also be understood to fall under the more general heading of 'overinvestment'. As with overinvestment, the problem is that the person that profits from asset stripping (the one that receives the assets) does not also run the (full) downside risk. However, the terminology of overinvestment is somewhat confusing in this context, as no real investment is made. The corporation is just stripped of assets. Asset stripping thus is a more straightforward way of opportunistic behavior.

In large corporate groups, asset shifting or stripping may be especially problematic, because asset shifting within a group is relatively easy. Guarantees can and do play an important role in protecting the lender to a group of companies from asset shifting. The paradox is however that, in a corporate group, the legal entities that cross-guarantee a lender's claim may actually be created to suit the needs of the lender and thus reduce the cost of credit. This point will be evaluated further in chapter 3 paragraph 3.1. For now, it suffices to establish that asset shifting

[250] Mann, 1998, p. 24, quoting from an interview with Sergio Ora, National Credit Administrator for Small Business, KeyBank, N.A.
[251] Lopucki *et al.*, 2006, pp. 578–579.

can be a serious concern within groups, and that intra-group guarantees can fix this problem as far as the guaranteed lender is concerned.

3.3 The function of other devices

The last few paragraphs explained the guarantee relationship as a device that creditors can use to limit opportunistic behavior of debtors. It is however not the only device that can deal with such opportunistic behavior. To understand the relevance of the guarantee relationship, the availability and effectiveness of other such devices deserves some attention. The other available devices can roughly be divided into two categories: statutory devices, and private (or: contractual) devices. The rough divide made here is that private devices have to be contracted for, whereas statutory devices apply regardless of what parties contracted for (either mandatorily or by default). The demarcation can of course not always be made clearly. Contractual devices depend on law for their enforcement. But a rough divide is useful here, as the private devices will be discussed here, whereas the statutory devices will be discussed in the comparative chapters, as they depend much more, and vary with, the applicable law. A borderline case is arguably secured credit, which can (and has to) be contracted for, but the effects of which depend strongly on, and vary accordingly with, the status that the legal system gives to such rights.

The most obvious private devices that can deal with debtor opportunism are secured credit and covenants. Both have their own limitations, especially in smaller businesses. Both covenants and secured credit will be discussed below in both the small and the large business context.

In bank lending to large business, covenants[252] are often used to gain influence over debtor decision making. As Baird and Rasmussen explain:

> *"These loans [by banks and other non-financial institutions] - and their volume now exceeds half a trillion dollars per year - come with elaborate covenants covering everything from minimum cash receipts to timely delivery of audited financial statements. When a business trips one of the wires in a large loan, the lender is able to exercise de facto control rights - such as replacing the CEO of a company - that shareholders of a public company simply do not have."*[253]

In loans (not including bonds) made to public companies, covenants are pervasive, they are used by lenders in all but exceptional cases.[254] The lender will simply describe what kind of behavior is expected from the borrower and will monitor this behavior. Often used covenants include restrictions in debt levels, restrictions in investments, minimum cash flows and minimum net-worth.[255] When the debtor does not abide, the covenant often allows the creditor to get control

[252] See for a short description of covenants Greenbaum and Thakor, 2007, p. 184: *"Covenants are a negotiated part of loan agreements. Warranties verify certain statements by the borrower at the date of execution of the loan agreement. Covenants carry forward the warranties and establish the borrower's ongoing obligation to maintain a certain status for the loan's duration. Covenants set minimum standards for a borrower's future conduct and performance and thereby accelerate the loan in the event of untoward developments. Violation of a covenant creates an event of default and gives the bank the right to ''accelerate'' the required repayment."*

[253] Baird and Rasmussen, 2006, p. 1211; see also Triantis, 1996, pp. 100–102; Smith and Warner, 1979; Tung, 2009, p. 135 ff.

[254] Tung, 2009, p. 136; Demiroglu and James, 2010; Roberts and Sufi, 2009.

[255] Tung, 2009, pp. 136–139.

rights, such as replacing the manager, or the lender can call a default and accelerate the debt.[256] In large, public companies these covenants can give the lender substantial leverage, effectively considerably reducing the problem of debtor opportunism.[257] However, it is impossible to describe all unwanted debtor behavior in a contract.[258] Even the strictest contracts will still leave room for some debtor opportunism.[259]

The problem with covenants is that their enforcement depends heavily on creditor monitoring. That restricts the practicality of using covenants to control debtor misbehavior to large loans. For small loans, monitoring is often simply too costly.[260] Moreover, in large firms, a covenant that gives a lender the power to replace management will give it a strong negotiating position vis-à-vis management, but in small firms the threat of replacement is often not viable. Small firms often are too intertwined with the person of the manager, his or her specific abilities and his or her contacts.[261]

Secured credit is also often associated with limiting opportunistic use of limited liability.[262] Just like the problem with covenants however, secured credit is a much less powerful tool in lending to small businesses than it is in lending to larger business. In larger businesses, the threat of foreclosure by the lender can make the debtor shiver. A fire sale is likely to result in a low price for the assets, and thus in substantial damage to the debtor. The creditor can threaten to foreclose, thus pressuring the debtor not to engage in overly risky conduct that damages the creditor. In smaller businesses, this threat is not always credible. The value of the collateral in relation to the outstanding loan tends to be low in small businesses.[263] The lender probably relies strongly on the cash flow of the debtor for repayment, and seizing the collateral will, in the small business context, almost invariably destroy the cash flow.[264] Secondly, for secured credit to work well in preventing the debtor from excessive future borrowing, the creditor ideally should monitor the collateral in which it obtained a security right. As also discussed in relation to covenants, such monitoring is simply not feasible in most small firms.[265]

In short, whereas covenants and real security rights may be able to contain debtor misbehavior in larger firms, these devices often work less well and are less practical or too costly in smaller firms.

3.4 Summary

Ex post opportunism because of a state of moral hazard can be a serious problem in debtor-creditor relationships. Opportunistic default and asset shifting are especially a concern. The

[256] Tracht, 2000, pp. 510–511.
[257] Tung, 2009, pp. 136–137; Triantis, 1996, pp. 100–102; Baird and Rasmussen, 2006; R. R. de Barondes, 1998, p. 51 ff. Compare also Buckley, 1992, p. 256.
[258] Tracht, 2000, p. 511.
[259] Compare Buckley, 1992, p. 272.
[260] Tracht, 2000, p. 518; Mann, 1998, pp. 17–18.
[261] Tracht, 2000, p. 518.
[262] Mann for example concludes that secured credit may lower the cost of credit by "enhancing the borrower's ability to give a credible commitment to refrain from excessive future borrowing and by limiting the borrower's ability to engage in conduct that lessens the likelihood of repayment." R. J. Mann, 1997.
[263] Mann, 1998, pp. 15–17.
[264] Mann, 1998, p. 17 ff.
[265] See above.

guarantee can act as a bonding mechanism between both guarantor and creditor, and indirectly between debtor and creditor. In doing so, the guarantee relationship can reduce transaction costs, specifically the expected cost of the risk that the debtor will default, by limiting the incentives for opportunistic behavior of the guarantor and the debtor towards the guaranteed creditor.

Empirical evidence indeed shows guarantees can reduce moral hazard.[266] The work of Williamson also shows that parties rely on complex governance structures as forms of private ordering to reduce opportunism. The guarantee can be used as such a governance structure. The case for limiting the room for opportunistic default or renegotiation with the guarantee as a credible commitment thus seems strong, especially in small companies that highly depend on the human capital investment of specific individuals and in the case of a debtor that is much more likely to act opportunistically than his creditor.

The guarantee relationship can moreover be used to tackle the more specific problems of overinvestment, inadequate effort supply and asset shifting that are often associated with limited liability. In the literature, especially the problem of overinvestment has been extensively discussed in relation to limited liability rules. Although this problem theoretically exists in a legal vacuum, the relevance in practice, where the assumptions of the overinvestment problem do not always apply, may have to be relativized somewhat, though the problem remains real. Guarantees can sometimes help, but can also work counterproductively. Asset shifting also seems to be a relevant problem, which can be mitigated with a guarantee relationship.

4 Specialization in monitoring

A function that the guarantee may serve in lowering transaction costs is shifting the cost of monitoring to the guarantor. The guarantor will do some monitoring of the debtor, as he also runs a risk. This will reduce the cost of monitoring for the creditor. If the creditor would however be just as good at monitoring this debtor as the guarantor is, this will not lead to a reduction of the aggregate cost of monitoring. The burden is just (partly) shifted to the guarantor. In fact, the aggregate cost of monitoring may increase because some of the monitoring by the guarantor and creditor respectively may overlap.[267] The only way in which this would reduce transaction costs, is in case the guarantor has a comparative advantage in monitoring. Such an advantage exists when the guarantor is able to do the same or better monitoring at lower costs.[268] We see here that, because of possible different monitoring abilities, monitoring is not always a zero-sum game. This is also the conclusion Katz reaches as the explanation why guarantees can be efficient.[269]

But the story is contested. The guarantee relationship may actually increase overall monitoring costs, even if the guarantor does indeed have a comparative advantage in monitoring.[270] Moreover, while the theory would predict that parties that are inferior monitors would

[266] Pozzolo, 2004; Haas and Millone, 2016; however see Blazy and Weill, 2013, reaching a contrary conclusion.
[267] Compare Jackson & Kronman 1979, p. 1154.
[268] Jackson & Kronman 1979, p.1161.
[269] See Katz 1999, pp.62–63.
[270] Squire 2009.

especially demand guarantees, practice shows that guarantees tend to be granted to those creditors that are expert monitors and risk bearers, such as banks and bank syndicates.[271] Professional lenders specialize in obtaining information on borrowers and on the relevant industry. As Thakor and Greenbaum put it *'[i]f there were no informational problems in loans, there might not be any profits for banks in lending.'*[272] It is unlikely that others would be able to monitor at lower costs than such expert monitors. As a result of the guarantee relationship, incentives to monitor may often actually be transferred to an inferior monitor.[273] In this line of reasoning, Manove et al. argued that collateral often makes professional lenders too lazy. They submit that restricting collateral requirements and restricting the protection collateral provides in bankruptcy, would therefore lead to a more efficient credit market.[274]

It is often submitted that a guarantor, though generally not necessarily possessing the skills for monitoring, may be a good monitor in a specific case because of his relationship with the debtor. If the guarantor is a shareholder or director of the debtor, he will be close to the fire and thus arguably in a good position to monitor. Likewise, a family member or friend that guarantees a debt may be in a good position to monitor his friend. We should however distinguish here, as I have done before, between reducing the *cost* of monitoring and reducing the *need* for monitoring. As already discussed, the guarantee may reduce the *need* for monitoring by this creditor. Whether it also reduces the cost of monitoring for the amount of monitoring still needed, is less obvious. Reducing the need for monitoring could be welcome, but has implications that go far beyond reducing monitoring costs, as will be extensively discussed in chapter 3.

Both Katz and Heine & Janal emphasize the comparative advantage in monitoring (combined with a signaling function[275]) as the main, efficient reason for the use of guarantees.[276] Especially in the small business context and in the context of guarantees within corporate groups, two of the most important areas where guarantees are ubiquitous, emphasizing the 'comparative advantage in monitoring' conceals the real dynamic behind the guarantee relationship. Such an explanation takes the legal fiction that the corporate form creates too seriously. The idea of a shareholder or director monitoring the company's decisions is confusing and ill-founded. The creditor cannot usually trust on such monitoring because guarantor and company are intertwined. The guarantor is also not necessarily to be trusted in his assessment of the debtor, because he is unlikely to be objective (see also paragraph 2 above). The creditor, who still runs a risk of default of both guarantor and debtor, will thus still have to monitor the guarantor, which includes monitoring the debtor.

Any type of guarantee can be used to fulfill this function, as long as the guarantee actually shifts risk to the guarantor. Guarantee relationships in which the recourse claim is secured (by either real security rights or personal security rights) are probably less suitable as such security shifts

[271] Squire 2011, p.618.
[272] Greenbaum and Thakor, 2007, p. 182.
[273] See also Freedman, 2000, p. 340.
[274] Manove, Padilla and Pagano, 2001.
[275] See paragraph **Fout! Verwijzingsbron niet gevonden.** on the signaling function of guarantees.
[276] Katz 1999, pp.62–63: *"guaranteed lending is more efficient than unguaranteed lending when G's monitoring and collection costs are sufficiently lower than C's, and C's liquidity costs are sufficiently lower than G's* (…) [and] *guaranties are more efficient than intermediation when C places a sufficiently higher value on having a direct claim against D than do G's other creditors and stakeholder"*; Heine and Janal, 2010, pp. 8–10.

risk away from the guarantor again. When the guarantor does not bear any risk, there is no incentive for the guarantee to monitor.

5 Specialization in risk-bearing

The most obvious way in which a guarantee relationship reduces the risk that the creditor runs is granting the creditor an alternative source of collection: the patrimony of the guarantor. However, this simple shift of risk, assuming the risk of default of the debtor remains stable, can in itself not explain why this arrangement would be efficient to the three parties involved together.[277] The shift of risk to the guarantor can however entail a reduction of the aggregate cost of risk, even if the risk of default of the debtor remains stable, if the guarantor is a more efficient risk-bearer than the creditor. It is important to see that the guarantee relationship can thus increase efficiency without (necessarily) decreasing the risk of default of the debtor.[278] This mechanism can reduce the *cost of* the risk of default. This is often the rationale of comparable instruments such as insurance contracts and credit default swaps.

Why some persons, either legal persons or natural persons, are more efficient risk-bearers than others can depend on various circumstances. The most obvious example of such a circumstance is the difference in the amount and type of assets the person holds. It could be that one person holds illiquid assets, for example real-estate rented out to tenants, while another person holds readily available liquid assets. If the risk, in our case that the debtor defaults, materializes, the person with the liquid assets is able to bear the risk at lower cost. Similarly, the costs borne when the risk materializes can be higher for a person with very little assets compared to a person with many assets. If materialization of the risk could render him insolvent or near insolvent, a person may have to bear many additional costs because of insolvency. It could also be that the lender has a geographically concentrated asset portfolio, whereas the guarantor has a diversified portfolio.[279] These are reasons why different persons value risk differently. Just as a good can be valued differently by different people, risk can be valued differently.

It is important to recognize that in the common situation of a guarantee granted to a professional lender in the small-business context, this ability of the guarantee relationship to shift risk to a more efficient risk-bearer often works in the opposite direction.[280] As Freedman puts it:

> *"Far from shifting the risk to superior risk bearers (the large specialist creditors), it transfers it to those small trade and involuntary creditors least able to assess and bear it, without necessarily protecting the business owners."*[281]

[277] Fulghieri & Goldman 2008, p.32: *"The wide use of collateral in debt contracts cannot be explained if collateral simply results in a change in default risk and therefore in a reallocation of risk between the borrower and the existing lender."*; Mann, 1999, pp. 2260–2261.
[278] Compare White 1984, p.491 ff, who describes this mechanism for debts secured by real security rights. See also Schwartz 1981, pp.22–23.
[279] Compare Honohan, 2010, p. 2.
[280] Compare Mann, 1999, pp. 2260–2261.
[281] Freedman, 2000, p. 340.

Freedman refers to the situation in which the principle of limited liability transfers risk to trade creditors that are less efficient risk-bearers. The lender probably holds a diversified asset portfolio and probably has a reasonable degree of liquidity, which makes this lender likely to be a superior risk-bearer compared to small trade creditors. Likewise, in a guarantee given by a small business owner for the benefit of an institutional lender, the small business owner is probably a less efficient risk-bearer.[282]

That is not to say the guarantee relationship cannot increase efficiency. There may be other reasons for setting up the relationship, such as reducing moral hazard. However, it should be noted that the argument on specialization in risk-bearing may, for example in the setting of small business loans, often work in the opposite direction, thus often reducing the overall efficiency of the credit relationship. As long as that reduction is set off by efficient effects, the parties may rationally pursue the relationship regardless of the fact that risk is shifted to a less efficient risk-bearer.

Many guarantees that are issued in practice may however inefficiently shift risk to the guarantor, without this reduction in overall efficiency being set off by other efficient effects. In such a case, market failure occurs. The, often sophisticated, creditor may not care much, as the costs are born by the guarantor and by society at large (think for example of the costs to society of guarantor bankruptcy). In relation to secured credit, Mann rejects the market failure explanation, claiming that there are readily available alternatives to secured credit that borrowers could also use.[283] In the case of guarantees, market failure seems however more likely. Firstly, in the case of small-business finance, lenders almost invariably ask for guarantees.[284] Alternatives for large loans are thus not readily available. Moreover, signing a guarantee includes very little costs that have to be born directly. There may be a future liability under the guarantee, but given the general overoptimism of debtors that apply for credit,[285] they are unlikely to take the expected cost of this contingent liability seriously, and may thus not account for it in their decision to sign the guarantee.[286] The fact that the shift of risk that the guarantee entails may be inefficient, is thus likely to go unnoticed by the guarantor.

As becomes clear from the analysis above, guarantors that are expert risk bearers first come to mind as guarantors in a guarantee relationship that is designed with a function of specialization in risk-bearing in mind. Thus, guarantors with a diversified portfolio such as large banks and insurers probably best perform this function.[287] Moreover, the guarantor should be a safe party. When the guarantor itself is in risk of defaulting, which is clearly the case in guarantee obligations that are disproportionate in relation to the wealth of the guarantor, the creditor still bears a share of the risk. All types of guarantees, both subsidiary and non-subsidiary, dependent and independent, special and global can fulfill this function. Guarantee relationships in which the recourse claim is secured (by either real security rights or personal security rights) are probably less suitable as such security shifts risk away from the guarantor again. What matters is however the asset portfolio, wealth and risk preference of the creditor compared to the guarantor.

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[282] Compare Mann, 1999, p. 2260.

[283] Mann, 1998, p. 11.

[284] Mann, 1998, pp. 22–25.

[285] See for example De Meza and Southey, 1996: "*borrowers actually have biased expectations. Our general perspective is that it is the unrealistically optimistic who, through self selection, will dominate the entrepreneurial class*".

[286] There is some recent research in behavioral economics that relates this to overoptimism. Managers often underestimate the possibility of bankruptcy and overestimate their ability to avoid it: Dickerson, 2003. Overoptimism is believed to be of especially strong influence on decision making by managers: Greenfield, 2014, p. 524; see also Williams, 2014; Ang, 1992, p. 191.

[287] See also Mann, 1999, p. 2260.

6 Conclusion

This chapter has sought to answer the question:

> *What is the beneficial economic function of the guarantee relationship in corporate finance?*

Whereas related topics such as the function of secured debt and the function of insolvency systems have been analyzed to a great extent by both lawyers and economists, the economic function of the guarantee relationship is until now underexposed in the context of corporate finance. This chapter both provided an overview of the fragmented existing literature on the economic function of the guarantee and builds on this literature, and on literature on devices with a resemblance to or connection with the guarantee relationship, to provide a comprehensive functional analysis of the guarantee relationship in the context of corporate finance.

Various possibly positive functions of the guarantee relationship have been discussed: signaling, reducing moral hazard, enabling specialization in ex post monitoring and enabling specialization in risk-bearing. Probably the most important function is the use of a guarantee to reduce moral hazard, working as a bonding mechanism to reduce opportunistic behavior such as asset shifting and opportunistic renegotiation and default. Specialization in monitoring and in risk-bearing can also be of importance, but shifting monitoring or risk to the guarantor will, in the context of corporate finance, often increase transaction costs.

To start with signaling, guarantees have often been associated with performing a signaling function, thus reducing information asymmetries between borrower and lender, limiting the room for ex ante opportunistic behavior, reducing adverse selection problems and alleviating (effects of) credit rationing. The empirical evidence on these functions is however not clear-cut. If guarantees can indeed perform a signaling function, the best suited guarantees seem to be those provided by sophisticated guarantors with little emotional ties to the debtor, that at the same time possess quality information on the debtor's credit quality.

Next to signaling, the guarantee can act as a bonding mechanism between both guarantor and creditor, and debtor and creditor. In doing so, this type of *creditor governance*[288] can reduce the risk of default of the debtor by limiting the incentives for ex post opportunistic behavior of the guarantor and the debtor towards the creditor. Three specific problems of moral hazard related to limited liability have been discussed: overinvestment, inadequate effort supply and asset shifting. Though the relevance of the problem of overinvestment is somewhat unclear and guarantees do not always help in this context or can even work counterproductively, especially inadequate effort supply and asset shifting do seem to provide real problems for lenders, which can be addressed by guarantees. Other devices, such as covenants and secured credit, can also deal with these problems to some extent, though seem to be less practical in relation to smaller debtors.

[288] Compare Tung 2009, who speaks of *lender governance*.

The guarantee relationship can also entail a cost saving by transferring risk, and thus some incentive to monitor, to the guarantor. To save on monitoring, the guarantor must have a comparative advantage in monitoring. Although a cost saving through this mechanism is theoretically possible, practice shows that especially guarantees in corporate finance tend to be granted by inferior monitors to those creditors that are expert monitors and risk bearers, such as banks and bank syndicates. The mechanism thus often works counter-productively.

Guarantees can furthermore be used to enable specialization in risk bearing. In this way, the guarantee relationship can perform the function of insurance. In order for this to work, the guarantor needs to be an expert risk bearer, for example because of a diversified asset portfolio. Like with specialization in ex post monitoring, although this function can indeed be supported by the guarantee relationship, guarantees in corporate finance are often granted by inferior risk bearers.[289]

In short, the most convincing function of the insider guarantee in corporate finance is to reduce moral hazard, more specifically asset stripping, in relation to the lender. Although the relevance of the classic problems of overinvestment and underinvestment is somewhat questionable, the danger exists that the debtor will either not put in enough effort or misbehave in times of distress by shifting assets away to related parties. The insider guarantee relationship can fix this problem as far as the guaranteed lender is concerned, by infusing the insiders with the interests of the guaranteed lender. The other possibly efficient functions of the guarantee as discussed in the literature (signaling, specialization in risk-bearing and specialization in monitoring) are usually not performed well, or are sometimes even counterproductive, at least in the context of corporate finance. The guarantee relationship in corporate finance can therefore in most cases most usefully be understood as a governance device, a bonding mechanism that aims to reduce moral hazard of the guarantor and debtor.

[289] Compare Mann, 1999, p. 2260.