

AMERICAN BANKRUPTCY INSTITUTE JOURNAL

The Essential Resource for Today's Busy Insolvency Professional

Value & Cents

BY JAIME D'ALMEIDA AND MICHAEL VITTI

Relevance, Value and Allocation of Debt Guaranty Is Not Guaranteed



Jaime d'Almeida
Duff & Phelps, LLC
Boston



Michael Vitti
Duff & Phelps LLC
Morristown, N.J.

Jaime d'Almeida, ASA, CFE is a managing director with Duff & Phelps LLC in its Disputes and Investigations Practice in Boston. Michael Vitti, CFA is a managing director in the firm's Disputes and Investigations Practice in Morristown, N.J.

Benjamin Franklin famously said that “in this world, nothing can be said to be certain, except death and taxes.” It is also axiomatic that uncertainty envelops contested issues. Nevertheless, it still seems somewhat ironic that there can be exceptional amounts of uncertainty over debt-guaranty assessments in a contested matter.

There can be a legitimate debate over the need to assess a debt guaranty. For example, (unsecured) creditors of a subsidiary may contend that incurrence of an upstream debt guaranty rendered the subsidiary insolvent, which is relevant in an avoidance action. Conversely, others may argue that the incurrence of an upstream guaranty is irrelevant because related set-offs and subrogation claims completely offset the guaranty's cost. Thus, disputes over debt guaranties can have an additional level of debate relative to simpler topics where adverse parties only disagree over *how* to do something, not *whether* to do something.

The valuation of a debt guaranty is more difficult than it appears on the surface. The value of a debt guaranty should be based on the difference in interest between (1) the “real world” with the guaranty, and (2) the “but for” world without the guaranty. However, this type of information is not typically found in the fact record. In addition, even if the information is available, the guaranty's cost should be understated since the lender typically does not give full credit (*i.e.*, lower the interest rate to the fullest extent) for the guaranty due to the guarantor's credit risk (*i.e.*, a guaranty is only valuable when the guarantor can honor the guaranty). This is why alternative analyses are often required.

The analysis sometimes does not stop after the guaranty's cost is identified. It is not unusual for multiple entities to be jointly and severally liable for the guaranty, which adds an additional level of

uncertainty as adverse parties may disagree over the method used to apportion the guaranty cost to specific debtors.

Does the Guaranty Need to Be Assessed?

Consider a parent company that incurs debt that is guaranteed by its subsidiaries. Assume that the parent company and its subsidiary guarantors subsequently default on this obligation and file for bankruptcy within the relevant look-back period for a fraudulent-transfer lawsuit. Further assume that the subsidiary creditors allege that the subsidiary guarantors did not receive reasonably equivalent value and were rendered insolvent by the debt guaranty, or that the debt guaranty should be limited due to a “savings clause.” In either event, the subsidiary guarantors' creditors believe the guaranty needs to be assessed.

Others might believe that an assessment of the guaranty is not required. For example, assume that the consolidated enterprise is solvent under a hypothetical sale-based standard of value on the date that the guaranteed debt was issued. Selling the consolidated enterprise's assets would theoretically generate enough proceeds to repay the consolidated enterprise's liabilities. There is no need for an assessment if the guaranteed debt is issued and (hypothetically) repaid at the same time.

The subsidiary guarantors' creditors might counter that the consolidated enterprise's solvency is irrelevant. They are exposed to the parent company's downside (through the guaranty), do not benefit from the parent company's upside (due to no equity in the parent company), and cannot cause the parent company to retire the guaranteed debt. This fact pattern could support an argument that the guaranty should be assessed.

However, additional factors might completely offset the cost of the guaranty, rendering the guaranty's assessment moot. For example, the subsidiary guarantors might be able to use setoffs, which reduce the amount that they owe the parent company related to other obligations by the amount that they pay on the guaranty. If there are not enough setoffs, the subsidiary guarantors' payment on the guaranty may generate a subrogation claim on the parent company.

The parent company may have enough assets to pay the entire subrogation claim if it defaults on the guaranteed debt due to illiquidity, not insolvency (*i.e.*, there are sufficient assets at the parent company to pay the debt, but given the timing of the debt-repayment schedule, the subsidiary guarantors have to make the payment). Assuming that an interested party successfully convinces a trier of fact that an assessment is appropriate for the aforementioned reasons or some other reason, the guaranty's value will need to be determined.

How Does a Practitioner Perform the Assessment?

A debt guaranty is typically valued through the use of put-option formulas. A put option gives the holder the right to sell an asset (*e.g.*, a stock) at a certain price, called the "strike price." The put option is "in the money" when the asset's value is less than the strike price, creating a situation where the put option-holder can effectively sell an asset for more than its market value. Investors commonly use put options to protect against downside risk, as the holder benefits when the subject asset's value declines below the strike price.

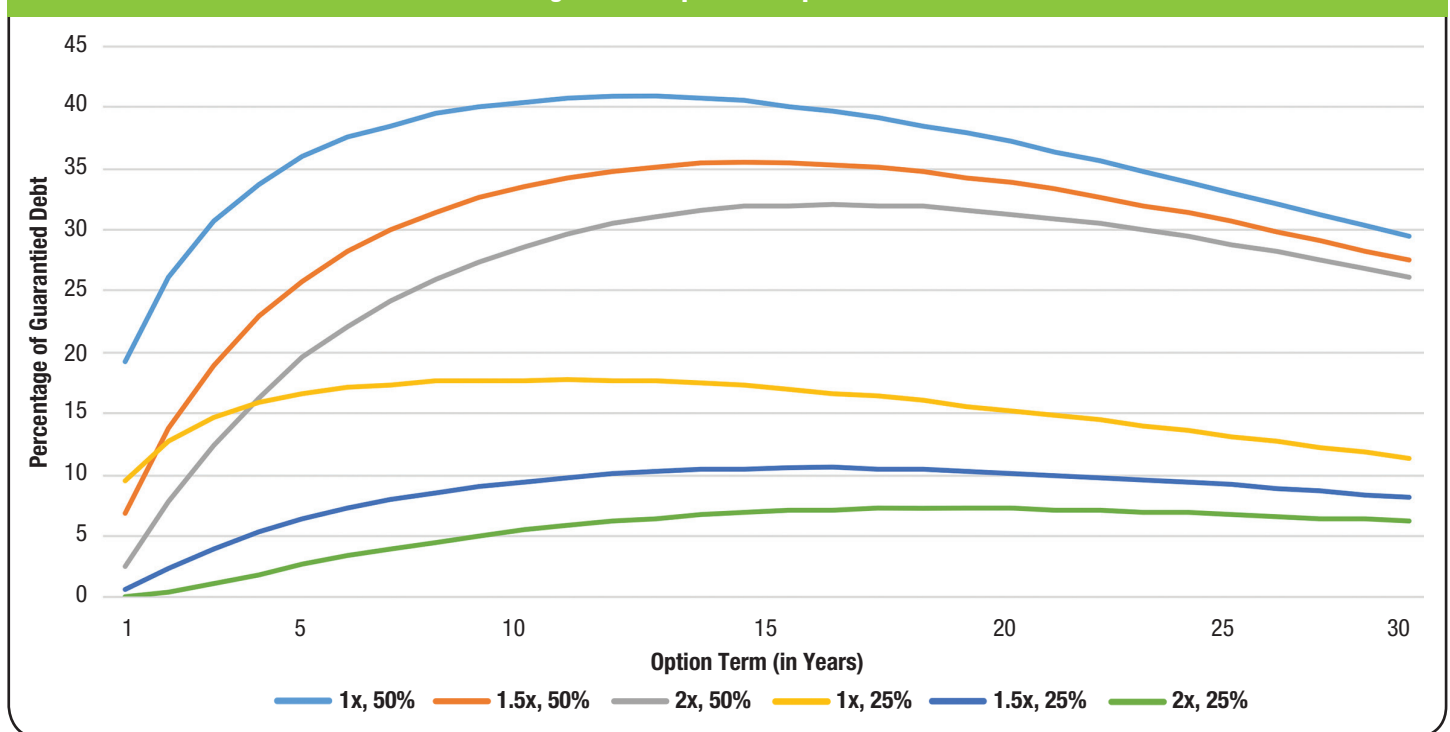
A debt guaranty is similar to a put option, with the guarantor(s) as the issuer(s) of the put option and the lender(s) as the holders of the put option. The lender(s) will only exercise the put option when the debt is worth less than face value, and the cost of the guarantor's obli-

gation increases as the gap between market and face (strike price) value increases. It is important to address/review a few conceptual issues when using a put option construct to assess a debt guaranty before a deeper dive into the weeds is warranted:

1. *Put options are typically tied to the value of a company's common stock price, not its enterprise (or asset) value.* However, the debt-guaranty framework requires an assessment of the debtor's enterprise value because the guarantor's stakeholders' only care in this context is about situations where the debtor's enterprise value is insufficient for purposes of repaying/refinancing the guaranteed debt. Thus, the guaranty analysis requires an alteration to the traditional put-option framework by focusing on enterprise value, not equity value.
2. *There are two broad parties to a put option: issuer(s) and the holder.* A put option is an asset to the holder because it gives the holder the right to exercise when it is in the holder's best interests. However, a put option is a liability from the issuer(s)' perspectives since they may have to effectively buy an asset at a (significantly) greater-than-market value. The value of the put option as both an asset (holder) and liability (issuer) is generally symmetrical.¹ Using the previous example, the guarantors essentially issued a put option to the lenders that provided the (guaranteed) debt, so there is a need to assess the cost of this option and characterize it as a liability.
3. *A put option's value/cost for purposes of this article is based on five variables: (a) risk-free rate, (b) underlying value of the asset, (c) strike price, (d) term/length of the option, and (e) volatility.* The risk-free rate provides the foundation for asset returns and, when greater than zero, pushes asset values higher over time. The difference between the underlying value and strike price iden-

¹ The liability reflects the full cost of the guaranty, whereas the asset typically reduces the full cost of the guaranty to take into account the guarantor(s)' inability to pay.

Figure 1: European Put-Option Costs



tifies how far the option is from, or in, “the money” on the valuation date. The term and volatility are used to project performance while the option agreement is in force. There is a sixth variable (dividends) that is important but difficult to appropriately address within the confines of this article so the authors have assumed that the debtor does not pay dividends.

The Option Model: European or American?

The authors will consider two types of put options. A European option can only be exercised at the end of the term. For example, a five-year put option issued on Jan. 1, 2017 (issuance), can only be exercised on Dec. 31, 2021 (expiration). On the other hand, an American option can be exercised at any point in time during the term. Not surprisingly, holding everything else constant, an American put option always has a greater value/cost than a European put option because it provides the holder with more opportunities to exercise the option, which matters because of the upward pressure on asset values due to the positive risk-free rate.

A debt guaranty shares characteristics with a European option. Assume that the parent company issued the guaranteed debt on Jan. 1, 2017, and that this debt must be repaid/refinanced on Dec. 31, 2021. Use of a European option is consistent with the need to assess the parent company’s ability to repay/refinance the guaranteed debt on Dec. 31, 2021.

However, a debt guaranty also shares characteristics with an American option. It is not unusual for a debtor to default (long) before the date the guaranteed debt has to be repaid/refinanced. Use of an American option is consistent with the need to assess the possibility that the parent company will become insolvent and default at some point after issuance and before the term’s expiration. As a practical matter, a debt guaranty often falls somewhere between the characteristics of a European and American option.

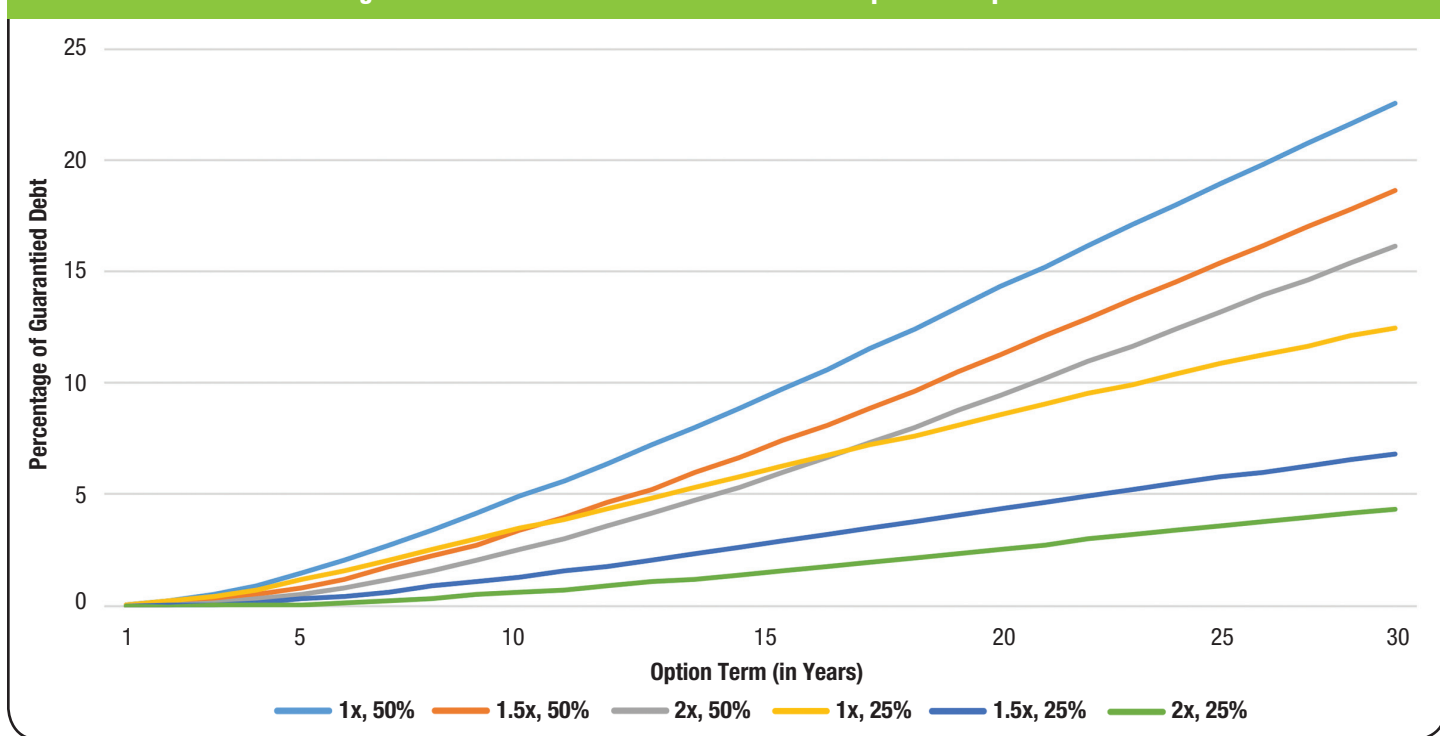
Using a European option as a proxy for a value/cost will often understate the debt guaranty’s cost because it excludes potential paths where the parent company becomes insolvent after issuance but returns to solvency by expiration. This matters because the parent company might be expected to default and not get the chance to return to solvency prior to expiration on some of these paths. The European option’s exclusion of these paths explains why a European option often will understate the cost/value of the debt guaranty.

Use of an American option as a proxy for value often will overstate the cost of the debt guaranty because it assumes that the debtor will default under all potential paths where the parent company becomes insolvent after issuance but returns to solvency by expiration. However, the parent company’s creditors will not always have the contractual ability to call in the loan prior to expiration on all of these paths, despite the parent company’s (temporary) insolvency. The American option’s inclusion of all of these paths explains why this option will often overstate the cost of the debt guaranty.

The analysis is straightforward when the subsidiary guarantors are comfortably solvent or insolvent. If the subsidiary guarantors are comfortably solvent, a practitioner can use the biased-high American option approach, as that will result in an overstated guaranty cost. It must follow that the subsidiary guarantors are solvent with more room to spare under the “correct” approach when they are solvent under the approach that results in a biased-high debt guaranty cost.

Similarly, if the subsidiary guarantors are comfortably insolvent, the practitioner can use the biased-low European option approach, as that will result in an understated guaranty cost. It must follow that the subsidiary guarantors are insolvent with more room to spare under the “correct” approach when they are insolvent under an approach that results in a biased-low debt guaranty cost.

Figure 2: Difference Between American and European Put-Option Costs



It is more difficult when the subsidiary guarantors are neither comfortably solvent nor comfortably insolvent. A more dynamic approach that tries to identify what would be expected to happen in the “temporarily insolvent” paths may make sense in this situation.

Term: Contractual or Refinance?

The guaranty’s term might be disputed. Some might say that the subsidiary guaranty’s term should match the guaranteed debt’s contractual term. For example, the guaranty term for a debt issued on Jan. 1, 2017, that matures on Dec. 31, 2021, is five years at issuance. Others might argue that the term should be longer because the subsidiary guaranty might be expected to be rolled over if the debt is refinanced in 2021. This argument might support a longer (and perhaps infinite when the going-concern premise of value is used) term for the guaranty. A counter-argument might be that the term should be shorter than the contractual term in certain situations because lenders might be expected to “exercise early” (*i.e.*, call in the loan) when they can in order to mitigate potential losses. This is different from the typical behavior of a put option-holder, who might be expected to “exercise late” in order to maximize the option’s value.

The debate over the term matters because, holding everything else constant, it often costs less when subsidiary guarantors are committed to guarantying debt over a shorter term than a longer term. More specifically, it always costs more when the American option methodology is used and it costs more up to a point when the European option methodology is used. Thus, it is not surprising when advocates for a lower guaranty value argue for a shorter term, whereas advocates for a higher

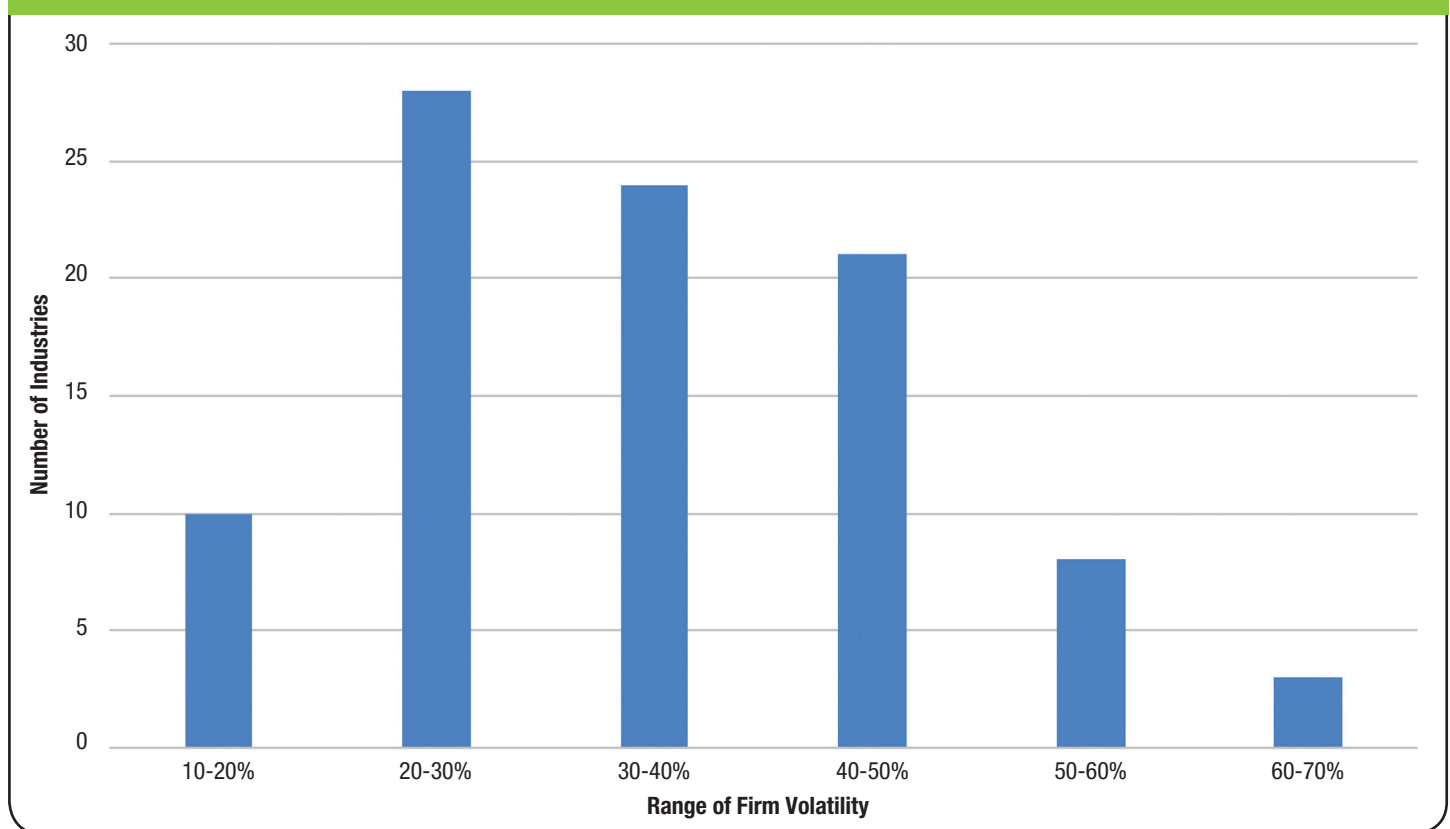
guaranty value argue for a longer term. That being said, the facts of any particular matter will likely drive the appropriate approach.

To provide context for the potential debates over term length and European versus American options, refer to Figures 1 and 2. There are various nuances when valuing options. These comparisons are for illustrative purposes and assume no dividends.

Figure 1 uses a binomial lattice model to assess a European option under three valuation scenarios and two volatility scenarios. The valuation scenarios assume that the guaranteed debtor’s enterprise value is equal to 1x, 1.5x and 2x the amount of guaranteed debt (which is the guaranteed debtor’s only debt obligation) on the date the guaranty was issued. The 25 percent and 50 percent volatility scenarios are near the low and high ends for published industry averages, which will be discussed later in this article. Notably, the guaranty’s cost declines after a certain point due to (1) the upward pressure on asset prices and (2) the length of time until the option can be exercised. As expected, holding volatility constant, the guaranty’s cost is less where the company is less leveraged (*e.g.*, green line) than where the company is more leveraged (*e.g.*, yellow line).

Figure 2 shows the difference between an American and European put option under the same valuation and volatility scenarios used in Figure 1. Unlike a European put option, an American put option continues to increase in cost/value over time because of the holder’s ability to exercise it at the optimal time over the option’s term. Thus, the difference between the two types of options is relatively small over the length of a typical term loan (*e.g.*, three to seven years) and relatively large when longer time horizons are considered.

Figure 3: Firm Volatility Across Industries



Volatility: Equity or Enterprise?

Practitioners typically use equity volatility when valuing put options because most put options are issued on common stocks. However, as previously discussed, for purposes of debt guaranties, the authors are interested in the firm's value, not the common stock's value. The guarantor's stakeholders in this context only care about situations where the debtor's enterprise value is insufficient for purposes of repaying/refinancing the guaranty debt. Therefore, the volatility that is needed for valuing the put option is firm volatility. Enterprise value (which consists of debt and equity) volatility is typically lower than or equal to equity volatility because debt volatility is lower than equity volatility. Therefore, if a practitioner calculates equity-level volatility, this must be converted into firm-level volatility when calculating option values for debt-guaranty purposes.

Volatility, whether at the firm or equity level, can differ among companies and can even differ significantly among industries. For example, NYU Prof. Aswath Damodaran published both firm- and equity-level volatilities for 94 industries on his website.² The histogram in Figure 3 is based on data from his website and shows the number of industries with firm-level volatility within various bands.

The authors focus on enterprise value/volatility but note that some practitioners use enterprise value/volatility as a proxy for asset value/volatility. The language is not semantics, however, if enterprise value/volatility and asset value/volatility result in different probabilities of default and/or losses given default on the guaranteed debt.

How Is the Assessed Cost of the Guaranty Apportioned Across Multiple Guarantors?

In some cases, the debt guaranty is only provided by a single guarantor. However, in many cases, the parent's debt will be guaranteed by multiple subsidiaries. In these situations, it might be necessary to determine how much of the guaranty is borne by each of the subsidiaries. For example, it might be logical to allocate the assessed cost of the guaranty (based on the put-option value) across multiple guarantors on a *pro rata* basis with the allocation based on the guarantors' relative valuation prior to consideration of the guaranty. Focusing on relative valuation puts each guarantor on an apples-to-apples basis and takes into account their ability to pay.

In hindsight, some guarantors will perform better than others, and the lender will often plan for that outcome by requiring the guaranty to be several in addition to joint. However, knowing which guarantors will perform better/worse than expected is not foreseeable as of the valuation date, which is why it might make sense to focus on relative valuation as of the valuation date.

Conclusion

Perhaps the only guarantee that the authors can offer is that adverse parties will dispute many aspects of a debt guaranty's assessment when the stakes are high. The authors have discussed some of the threshold issues that practitioners will likely need to address when considering the impact, if any, of

debt guaranties. However, the issues addressed in this article should not be considered exhaustive. The analysis of debt guaranties should always be case-specific, applying the facts of the matter and using the most relevant and appropriate financial tools. **abi**

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² This data is available at pages.stern.nyu.edu/~adamodar.