

Grounding Retrospective Solvency Analyses in Contemporaneous Information: Part I

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Courts frequently use contemporaneous information to assess a debtor's solvency as of the date a disputed transfer was made or a disputed obligation was incurred. This is the first of three papers that provides a business valuation practitioner's perspective on how to use contemporaneous information to assess the debtor's solvency on the relevant date. This paper addresses the use of the debtor's contemporaneous stock and debt prices.

Introduction

Courts and practitioners have highlighted the trend and merit in the courts' use of contemporaneous information to assess a debtor's solvency as of the date a disputed transfer was made or a disputed obligation was incurred. A finding that the debtor was insolvent can result in the reallocation of billions of dollars among stakeholders in a single lawsuit. The stakes are too high to get the determination wrong. This series of papers provides an overview of the courts' use of contemporaneous information and a business valuation practitioner's perspective on how to use contemporaneous information.

Solvency analyses are often central to a court's determinations in fraudulent conveyance and preference lawsuits.¹ The plaintiff in these lawsuits effectively represents the creditor(s) of a bankrupt debtor. These creditors attempt to recover transfers that were made or void obligations that were incurred prior to the debtor's

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¹These laws protect creditors when they are harmed as a result of a disputed: (a) transfer (e.g., a dividend) or (b) incurrence of an obligation (e.g., a loan guaranty). Fraudulent conveyance lawsuits address disputed transactions where the debtor: (a) does not receive reasonably equivalent value, (b) was insolvent prior to, or rendered insolvent as a result of, the disputed transaction, and (c) the transaction is not subject to safe harbors (e.g., the so-called "settlement payment" defense). The look-back period (i.e., the length in time between the transfer date and the debtor's subsequent bankruptcy filing) is two years under federal law and often longer under state laws. There are two avenues that a plaintiff can pursue: (a) actual intent (i.e., the recipient of the transfer *knew* creditors would be harmed) and (b) constructive fraud (i.e., the recipient of the transfer *should have known* that creditors would be harmed). It is often difficult for a plaintiff to establish actual intent, which is presumably why many cases are decided on the constructive fraud provision. Solvency analyses are often central to a court's findings regarding constructive fraud

bankruptcy filing. The basic premise is the allegation that creditors were harmed by the pre-petition transfer (or incurrence of obligation) and that the debtor was insolvent prior to, or rendered insolvent as a result of, the disputed pre-petition transaction. The plaintiff will often argue that the cause of the debtor's bankruptcy filing (which is typically known in hindsight) was known or knowable when the pre-petition transfer was made or obligation was incurred. Conversely, the defendant will often argue that the debtor was solvent on the disputed transaction date and may also argue that the debtor's subsequent bankruptcy filing was caused by factors that were not reasonably foreseeable when the pre-petition transaction took place. The finder of fact needs to parse through these arguments to determine whether the plaintiff meets its burden of proof obligation.

The most recent financial crisis that began in the second half of 2007 unleashed a tsunami on financial markets that left many bankrupt companies in its wake. Creditors of these bankrupt debtors collectively lost many billions of dollars; however, the final tally has yet to be determined. The total amount and allocation of losses to specific creditors has been

allegations. Notably, there appears to be an overlap between the actual intent and constructive fraud provisions, as plaintiffs often attempt to set aside contemporaneous indicia of solvency by alleging that these indicators were influenced by a fraud (e.g., the debtor withheld material insider information). By extension, plaintiffs often allege that the contemporaneous indicators (e.g., the market capitalization of the debtor) would have been consistent with insolvency if the alleged fraud had not occurred. Preference lawsuits address situations where an existing creditor (i.e., a creditor with an antecedent debt prior to the transfer): (a) does not provide new value in exchange for the transfer and (b) receives a benefit when the debtor was insolvent at the expense of another similarly situated creditor. That is, the insolvent debtor effectively robs Peter to pay Paul, which results in preferential treatment for Paul. Peter will file a preference lawsuit against Paul to collect the money that Peter believes should have been given to him. The look-back period is ninety days for transfers to outsiders and one year for transfers to insiders. Solvency analyses (there is a rebuttable presumption of insolvency) are sometimes central to these matters. However, there are many types of transfers that are safe harbored and are therefore not subject to preference lawsuits (or are ultimately found in favor of the defendant without the need for solvency analyses); these safe harbors are beyond the scope of this series of papers.

and will continue to be contested over the next few years through fraudulent transfer and preference litigation.

The macro-environment prior to and during the most recent financial crisis may have been a “perfect storm” for fraudulent transfer and preference lawsuits. Debt capacity was robust prior to the most recent financial crisis, when valuations were high and liquidity was plentiful. The macro-environment changed dramatically during the most recent financial crisis, when valuations and liquidity decreased while volatility increased. This combination resulted in: (a) the funding of an unusually high number of leveraged transactions prior to the most recent financial crisis, and (b) the subsequent bankruptcy filing within a relatively short time frame for many of these debtors as they were affected by the crisis. Some creditors will argue that the debtor’s subsequent bankruptcy filing was foreseeable when the pre-petition transfer was made and file fraudulent transfer or preference lawsuits.²

This series of papers provides: (a) an overview of the role that contemporaneous valuations and credit assessments can play in these disputes and (b) some of the analytical techniques used by financial experts to assess a debtor’s solvency. This paper (the first in the series) addresses the use of a debtor’s contemporaneous stock and debt prices. The second paper will address the use of contemporaneous actions (excluding the debtor’s stock and debt prices) that can be used to assess whether a debtor was solvent or insolvent. The third paper will address the solvency analyses performed by financial experts retained in connection with litigation.

Overview of Selected Cases that Used Contemporaneous Stock and Debt Prices

There are three financial tests of solvency under federal law and many state laws for fraudulent conveyance lawsuits. The plaintiff only needs to establish that the debtor failed *one* of these financial tests in order to arrive at a determination of insolvency. The tests are generally referred to as: (a) the balance sheet test, (b) the adequate capital test, and (c) the ability to pay debts test.

There is only one financial test of solvency for preference lawsuits: the balance sheet test.

It could be argued that several cases have effectively collapsed these three financial tests for fraudulent conveyance lawsuits into one test that is based on contemporaneous stock and debt prices of the debtor. Several of the cases discussed in this paper focused primarily on the balance sheet test.

There is logic behind the courts’ focus on the balance sheet test in fraudulent conveyance lawsuits when the application of the test is based on the debtor’s contemporaneous stock and debt prices. This logic is perhaps best explained through an example. Consider a debtor that funds its debt instruments at market rates consistent with a viable business, and its stock is acquired for, or trades at, a price significantly greater than zero on the relevant date. This fact pattern strongly suggests (some may say definitely indicates) that this debtor passes the balance sheet test because contemporaneous market participants valued the debtor’s assets in excess of its liabilities. This fact pattern also suggests (some may say definitely indicates) that this debtor passes the adequate capital test and the ability to pay debts test because lenders were contemporaneously willing to take the calculated risk that this debtor may not subsequently have enough capital to repay its debts.

This section of the paper discusses three cases where the court used the stock and debt approach when it assessed the debtor’s solvency (or insolvency) as of the transfer date. The stock and debt approach is a relatively simple and powerful approach that values a debtor by adding the market value of the debtor’s equity and debt securities. This approach results in the valuation of the debtor’s business as assigned by contemporaneous market participants through real-time trades in the debtor’s securities. The court in each of these cases found the results from the stock and debt approach to be compelling and essentially dispositive. The stock and debt approach is also endorsed by leading academics.

Professor Brad Cornell, when discussing this approach, states:

“When the securities of a company being appraised are publicly traded, there is a *straightforward* valuation procedure: Sum the market values of all outstanding securities...The efficient market hypothesis also implies that the stock and debt approach, where it can be applied, provides the *most accurate* estimate of a company’s true value (emphasis added).”³

Professor Aswath Damadoran provides the following advice to practitioners:

“[W]hen the value from an analysis is significantly different from the market price, *start off with the presumption that the*

²Michael Simkovic and Benjamin S. Kaminetzky, “Leverage Buyout Bankruptcies, the Problem of Hindsight Bias, and the Credit Default Swap Solution,” *Columbia Business Law Review* 2011:118. The authors report that “[t]here has recently been a surge in fraudulent transfer litigation. During the credit boom that started in 2003 and peaked in 2007, banks issued a remarkable volume of loans and bonds, and an astounding volume of highly leveraged transactions were financed. As these debts become due and financially strapped businesses struggle to refinance, the result will almost certainly be a wave of defaults, bankruptcies, and intercreditor disputes—including fraudulent transfer litigation.”

³Brad Cornell, *Corporate Valuation: Tools for Effective Appraisal and Decision Making* (New York: McGraw-Hill, 1993), 34–35.

market is correct; then you have to convince yourself that this is not the case before you conclude that something is over- or undervalued (emphasis added).⁴

The stock and debt approach reflects the collective views of contemporaneous market participants, which can result in either solvency or insolvency determinations. The first two cases discussed next used contemporaneous stock and debt values to establish that the plaintiff did not meet its burden of proof obligation to establish that the debtor was insolvent on the relevant date. The third case discussed later herein used contemporaneous stock and debt prices to establish that the plaintiff did meet its burden of proof obligation. These cases show that contemporaneous market data can be used to arrive at both insolvency and solvency determinations, and the outcome is dependent on the specific facts of the case.

VFB LLC v. Campbell Soup Company

VFB LLC v. Campbell Soup Company (“*Vlastic*”) was primarily a fraudulent conveyance lawsuit related to the spin-off of Vlastic Foods International (“VFI”) from Campbell Soup Company (“Campbell”) in March 1998. VFI borrowed \$500 million from third-party lenders and distributed the proceeds to its former parent, Campbell, on the date of the spin-off transaction. The debtor, VFI, filed for bankruptcy in 2001. The trustee for VFI’s estate asserted that the \$500 million distribution was a fraudulent conveyance. More specifically, the trustee asserted that: (a) VFI did not receive reasonably equivalent value in the spin-off transaction, and (b) VFI was rendered insolvent as a result of the spin-off transaction.

Business valuation was the central issue in this matter.⁵ The trustee would have prevailed if VFI’s business was valued at less than its \$500 million of debt on the transfer date. The trustee ultimately did not prevail because the court found that the fair value of VFI’s business was substantially more than \$500 million on the date of the spin-off.

Vlastic is a noteworthy matter because the court focused primarily on the market prices for VFI’s stock and debt securities in its determination of VFI’s business

valuation.⁶ The Appellate Court found that “[a]bsent some reason to distrust it, the market price is a more reliable measure of the stock’s value than the subjective estimates of one or two expert witnesses.”⁷ The Appellate Court observed that “the district court regarded the hired expert valuations as a side-show to the disinterested evidence of VFI’s capitalization in ‘one of the most efficient capital markets in the world.’”⁸

The court’s analysis based on market information that was available as of the transfer date was straightforward. VFI’s stock was publicly traded on the transfer date. VFI’s market capitalization (its stock price multiplied by its number of shares outstanding) was \$1.1 billion, and its only debt obligation was the \$500 million loan that was funded at par on the transfer date. Therefore, VFI’s business valuation based on market prices was \$1.6 billion.⁹ This valuation (if reliable) established that the debtor was solvent by \$1.1 billion.¹⁰ This valuation (if reliable) also established that VFI received reasonably equivalent value because it received a business worth \$1.6 billion in exchange for the \$500 million cash that it distributed to Campbell.

The court’s analysis was not limited to information that was available on the transfer date. The trustee asserted that the market prices for VFI’s stock and debt securities were inflated (and the resulting business valuation of VFI based on these market prices was therefore unreliable) on the transfer date due to the alleged failure to disclose pertinent information. The court generally found that pertinent information was disclosed by the transfer date.¹¹ However, the court also found that some relevant information may not have been disclosed until after the transfer date. The court used a limited amount of hindsight to assess the significance of this information.

First, the court identified the time after the transfer date at which the pertinent information was clearly known by market participants. Second, the court obtained the market prices for VFI’s stock and debt securities as of this subsequent point in time. Third, the court assessed the change in VFI’s prospects between the transfer date and this subsequent point in time.

The court used this limited amount of hindsight to address the trustee’s assertion that VFI would have been

⁴Aswath Damadoran, *Investment Valuation: Tools and Techniques for Determining the Value of Any Asset*, 2d. Ed. (Hoboken, NJ: Wiley Finance, 2002), 5.

⁵The District Court framed the reasonably equivalent value test as the fair value of the debtor’s business relative to the amount of debt that the debtor incurred (it was previously unencumbered) in the spin-off. The debtor effectively received ownership in its business in exchange for the debt that was incurred in the spin-off as the proceeds from the debt were distributed to its former parent. Therefore, the reasonably equivalent value test and the balance sheet test were effectively the same. *VFB LLC v. Campbell Soup Co.*, 2005 WL 2234606, *21–*28 and *30 (U.S. Dist. Sep. 13, 2005). The Appellate Court observed that “The district court concluded that [VFI] was worth well in excess of the \$500 million VFI paid for it on March 30, 1998 (emphasis added).” *VFB LLC v. Campbell Soup Co.*, 482 F. 3d 624, 629 (3rd Cir. 2007).

⁶The court focused on other contemporaneous indicia of solvency too, which are discussed in the second paper of this series.

⁷*Vlastic*, 482 F.3d 624, 633.

⁸*Ibid.*, 629.

⁹This amount is computed as follows: \$1.1 billion of equity plus \$500 million of debt equals \$1.6 billion. *Vlastic*, 482 F.3d 624, 629.

¹⁰This amount is computed as follows: \$1.6 billion of business valuation less \$500 million of debt equals \$1.1 billion. This amount is equal to the debtor’s market capitalization because the debt was valued at par.

¹¹The District Court found that several of the topics that the plaintiffs alleged were not disclosed were in fact disclosed or knowable to contemporaneous market participants. *Vlastic*, WL 2234606, *24.

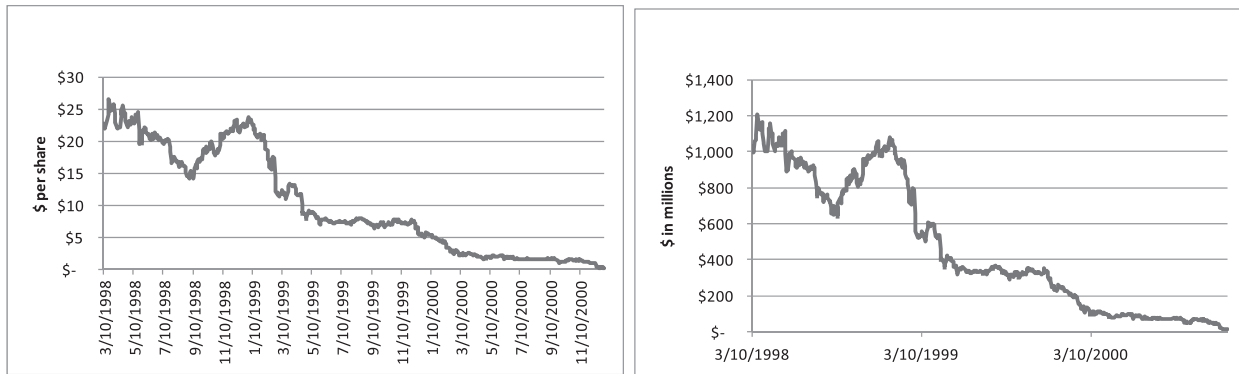


Figure 1
VFI's Share Prices (Left) and Market Capitalization (Right)

insolvent using market data if this information had been clearly disclosed on the transfer date.¹² The District Court found that VFI's market capitalization remained substantial several months after the transfer date "when the truth of VFI's situation had become clear."¹³ The Appellate Court observed "Nobody contends that VFI was worth more in September 1998 than at the end of March 1998. Consequently, if VFI's September 1998 market capitalization reflected a value for [VFI] of at least \$500 million, despite no longer being affected by Campbell's pre-spin operations, then [VFI] must have been worth more than \$500 million at the time of the spin."¹⁴ The Appellate Court also observed that "VFI's market capitalization did not even drop below \$1.1 billion until 1999, despite the market's quickly learning the truth about VFI's earnings prospects in 1998."¹⁵

VFI's stock prices and market capitalization are shown in Figure 1.¹⁶ Consistent with the court's findings, Figure 1 shows that VFI's market capitalization did not permanently drop below \$1.1 billion until 1999. Figure 1 also shows that VFI's business value (market value of equity plus market value of debt) did not decline below \$1.1 billion at any point in time until 1999. The District Court observed "[o]ne year after the Spin-off, VFI still had a market capitalization of about \$600 million, implying that the value

of the business transferred in the Spin-off [after adding the \$500 million value of debt] was about \$1.1 billion."¹⁷

The District Court used a limited amount of additional market data that was available in hindsight to make another important observation. VFI issued \$200 million in unsecured, subordinated bonds in June 1999, which was fifteen months after the transfer date. These bonds continued to trade near par for the remainder of 1999.¹⁸ The Appellate Court observed that these market participants were "aware of everything Campbell reportedly concealed about [VFI] prior to the spin."¹⁹ The Appellate Court further observed that "[a]gain, nobody claims that VFI's fortunes were improving, so the market's valuation of VFI as solvent in FY 1999 was strong evidence that VFI was solvent at the time of the spin, and therefore

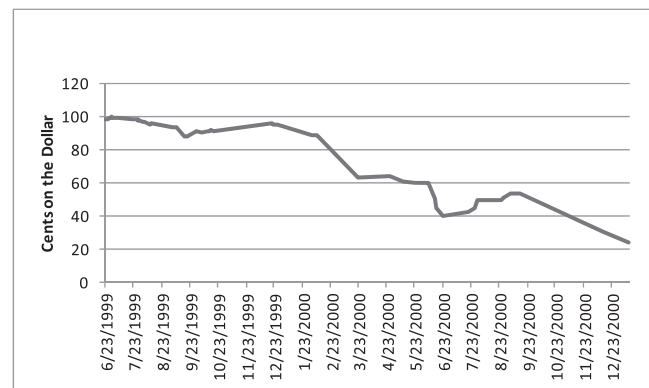


Figure 2
VFI's Bond Prices

¹²The Appellate Court explained that "[t]he District Court concluded that [VFI] was worth well in excess of the \$500 million VFI paid for it on March 30, 1998. It relied primarily on the price of VFI's stock, reasoning that as private traders seek to pay no more for an asset (and sell an asset for no less) than it is worth, the market price was a rational valuation of VFI in light of all the information available to the market participants. Although the price was infected by Campbell's manipulation of [VFI's] earnings at the time of the spin, VFI's stock price remained high even after the truth about VFI's prospects had been fully exposed. The District Court concluded that the post-exposure market capitalization was based on an accurate picture of VFI's position as of March 30, 1998, indicating a value of well over \$500 million at that time." *Vlasic*, 482 F.3d 624, 629.

¹³*Vlasic*, 482 F.3d 624, 632.

¹⁴*Ibid.*

¹⁵*Ibid.*, 629.

¹⁶Share prices were obtained from Bloomberg, and number of shares outstanding was obtained from VFI's SEC filings.

¹⁷*Vlasic*, 2005 WL 2234606, *25.

¹⁸"Fifteen months after the Spin-off, VFI successfully sold \$200 million of unsecured bonds to a group of 29 sophisticated institutional investors. The bonds continued to trade at or near par throughout calendar year 1999, despite a further decline in VFI's EBITDA/Interest coverage ratio from 2.5 to 2.2." *Vlasic*, 2005 WL 2234606, *25.

¹⁹*Vlasic*, 482 F.3d 624, 633.

received reasonably equivalent value for its \$500 million.’’²⁰

For additional context, VFI’s bond prices are shown in Figure 2, which shows that VFI’s bonds traded near par during 1999.

Iridium

In re: Iridium Operating LLC (“Iridium”) was primarily a fraudulent conveyance lawsuit in which the plaintiff sought to avoid approximately \$3.7 billion of transfers from Iridium to Motorola during a four-year period between August 1995 and August 1999. Iridium was a satellite-based telecommunication company that activated its service in November 1998 and filed for bankruptcy about nine months later. The court referred to Iridium’s demise as a “business failure of epic proportions.”²¹

The plaintiff argued that this “business failure of epic proportions” was foreseeable as of the transfer dates and by extension that the debtor was insolvent on the transfer dates. Conversely, the defendant argued that the debtor was solvent on the transfer dates as evidenced by contemporaneous markets prices for the debtor’s stock and debt securities and other contemporaneous indicators of solvency. The court found that the plaintiff was unable to meet its burden of proof obligation. The court focused primarily on the plaintiff’s inability to explain away Iridium’s contemporaneous indicia of solvency.

The court found *Vlastic* to be “pertinent and influential precedent.”²² The court found that:

“[*Vlastic*] validates the use of market data for purposes of valuing a public company for fraudulent conveyance purposes and makes clear that the public markets constitute a better guide to fair value than the opinions of hired litigation experts whose valuation work is performed after the fact and from an advocate’s point of view. This Court agrees with the reasoning of the Third Circuit in [*Vlastic*] and has found that case to be pertinent and influential precedent. In light of the valuation principles stated in [*Vlastic*], the Court has found insufficient cause to set aside the verdict of solvency and capital adequacy already given to Iridium by the public markets.”²³

There is an important difference between the debtors in *Vlastic* and *Iridium*. VFI was a consumer product company (anchored by the Vlastic pickles and Swanson frozen dinner brands) that was clearly solvent based on market data for almost two years after the transfer date. Iridium, on the other hand, was a speculative technology

venture that filed for bankruptcy shortly after the activation of its system.

This difference between the debtors in *Vlastic* and *Iridium* matters because the court’s findings in *Iridium* provide additional context for the rationale used by the court in *Vlastic*. Notwithstanding the court’s references in *Vlastic* to relying on market data even if it is affected by “irrational exuberance,”²⁴ it is difficult to credibly argue that VFI’s stock and debt prices were inflated for a sustained two year period due to a “pickle and frozen dinner bubble.” However, one may think it is possible to credibly argue that there was a “technology bubble” that inflated Iridium’s stock prices in the late 1990s. In fact, the court in *Iridium* acknowledged that “[t]his was very much a nineties project that was being developed when the markets were hot and fueled by a sense of optimism in a future of global connectivity.”²⁵

However, the court in *Iridium* did not dismiss contemporaneous market data due to arguments that there was a “bubble.” Therefore, the court in *Iridium* provides additional support for not dismissing “reasonably well informed” contemporaneous market data that nevertheless turn out to be “terribly wrong” in hindsight.²⁶

Nevertheless, the takeaway from opinions such as *Iridium* is not necessarily that the market is always correct. Context is important because the plaintiff has the burden of proof. The court in *Iridium* found “that the Committee has not carried its burden of proof in establishing that Iridium was insolvent or had unreasonably small capital during the relevant period.”²⁷ As discussed in more detail below, the plaintiff in *Iridium* ignored contemporaneous market data. It is possible that a different strategy, in which the plaintiff directly and credibly addressed contemporaneous market data, could have resulted in a different outcome.

²⁴“Even if, as [the plaintiff] implies, the market was suffering from some ‘irrational exuberance’ in establishing VFI’s stock price, that gives me no basis for second-guessing the value that was fairly established in open and informed trading.” *Vlastic*, 482 F.3d 624, 630.

²⁵*Iridium*, 373 B.R. 283, 301.

²⁶“Even though Iridium’s failure demonstrates that the public markets turned out in this instance to be a very poor predictor of Iridium’s future value, the Court has no doubt that the markets, especially after commercial launch, were reasonably well informed as to Iridium’s operating characteristics and constraints, yet still managed to be terribly wrong about the company’s actual prospects. Any reader of *The Wall Street Journal* knows that the markets are risky and unpredictable and that share prices frequently are influenced by a variety of factors unrelated to the fundamentals and potential of a particular company. Nonetheless, the public trading market constitutes an impartial gauge of investor confidence and remains the best and most unbiased measure of fair market value and, when available to the Court, is the preferred standard of valuation. See *Vlastic*, 482 F.3d 624 (3rd Cir. 2007).” *Iridium*, 373 B.R. 283, 293.

²⁷*Iridium*, 373 B.R. 283, 291.

²⁰*Ibid*.

²¹*In re: Iridium Operating LLC*, 373 B.R. 283, 291 (Bankr. S.D. New York, 2007).

²²*Ibid*.

²³*Ibid*.

Plaintiff's Strategy in *Vlasic* and *Iridium*

There is an important similarity between the plaintiff's case strategy in both *Vlasic* and *Iridium* cases. The plaintiff in both cases avoided a direct confrontation with contemporaneous market prices. The court in *Vlasic* observed:

“[The plaintiff] *does not even attempt to show* any market valuation of VFI contemporaneous with the Spin-off that is anywhere close to the figures urged by [the plaintiff's] experts. There is simply no credible evidence to justify setting aside VFI's stock price and the other contemporaneous market evidence of VFI's worth. Even if, as [the plaintiff] implies, the market was suffering from some ‘irrational exuberance’ in establishing VFI's stock price, that gives me no basis for second-guessing the value that was fairly established in open and informed trading (emphasis added).”²⁸

The court in *Iridium* observed:

“The Committee's experts have been *unable to account for, to adequately explain or to reconcile the abundant market data that conflicts with their opinion*, other than to question what the market knew about service limitations and to claim market judgments were not meaningful for a start-up company, particularly a company such as Iridium that required huge capital expenditures and a long development stage before generating any revenue. *They elected not to test and validate their valuation opinions* by utilizing any accepted methodologies other than the discounted cash flow approach to value, and based their opinion on restated cash flow projections that were *tailored for litigation purposes* well after the commencement of this adversary proceeding.

As a result of *not confronting the valuations implied by the public markets* concerning the enterprise value of Iridium and other comparable companies in the mobile satellite communications industry and of *dismissing the market data as inapplicable* to their analysis, the Committee's experts narrowed their focus to the point that they did not testify convincingly regarding all of the evidence that the Court needed to evaluate and, in the process, diminished the usefulness and credibility of their opinions...[The Committee's] principal valuation witness at times was also adversarial in defense of his opinions and in many instances did not give simple and direct answers questions during cross-examination. His ‘*hired gun*’ advocacy from the witness stand and lack of responsiveness to certain seemingly straightforward questions did not help his *credibility* (emphasis added).”²⁹

“With hindsight (and with what Motorola refers to as ‘hindsight bias’), the market value for Iridium securities during the relevant period turned out to be an unreliable

indicator of future fair market value, but that *does not justify ignoring this data*. This conspicuously inconsistent data *contradicts the opinions* of the Committee's experts and *needs to be explained and overcome* in order for the Committee to carry its burden during this phase of the trial. However, the Committee's experts *have treated such data as irrelevant and have not given a satisfactory explanation* for the abundant conflicting market judgments of those who were lending to or investing in Iridium during the period leading up to and immediately after commercial activation (emphasis added).”³⁰

“This *failure to address conflicting data points that are opposed to their opinion of insolvency* lessens in the Court's mind the weight to be accorded the testimony of these expert witnesses. Their testimony correlates well with the corporate failure that actually occurred but does not correspond with or take into account the widely held market perceptions that prevailed during the period leading up to bankruptcy. Because of the sheer volume of contemporaneous market evidence, to be effective and credible proponents of their opinion, *the Committee's experts needed to do more than they did* to demonstrate why all of the market participants were so terribly mistaken in assessing Iridium's value.

The *failure* of the Committee's expert witnesses *to incorporate other valuation approaches and to account for inconsistent market data is troubling to the Court*, not so much because it is absolutely necessary as a matter of valuation theory, but because the Court needs help to resolve the very pragmatic problem of how to fairly value Iridium. *By not dealing with the extensive anecdotal evidence that contradicts their opinions*, these experts have made it more difficult for the Court to accept their opinion testimony, testimony that seems to have *veered into the zone of advocacy*. As a result of not confronting the conflicting evidence of Iridium's solvency, the Committee's experts have lessened the impact of their testimony. *In short, they have a credibility problem* (emphasis added).”³¹

“Taken together and on balance, Motorola did a better job in establishing that *market evidence was relevant and persuasive data that could not be ignored* in determining insolvency than the Committee did in establishing that the market was an unreliable measure of value that should be ignored. Motorola, *through convincing and credible evidence*, established to the Court's satisfaction that when it came to valuation, *market participants had not been misled* about the expected performance of the Iridium system and were *reasonably well versed* regarding its capabilities. These participants seem to have done a poor job in predicting whether and when potential users of the Iridium satellite service would want to become subscribers, but that failure to foresee that Iridium was ultimately

²⁸*Vlasic*, 482 F.3d 624, 629–630.

²⁹*Iridium*, 373 B.R. 283, 293.

³⁰*Ibid.*, 293–294.

³¹*Ibid.*, 294.

doomed to fail does not mean that the original projections must have been wrong or were unreasonable when they were created.

The Committee's experts *have assumed that Iridium's projections were unreasonable* and have resorted to the creation of their own projections *solely for purposes of supporting their opinion* that Iridium was insolvent. Given the *extraordinary amount of diligence* that was performed by consultants retained by Iridium's lenders for the purpose of testing the reliability of Iridium's projections, the alternative set of projections crafted by the Committee's experts solely for purposes of this litigation are *of uncertain reliability and of doubtful credibility*.

These doubts, coupled with the strong evidence of a prepetition enterprise that had the ability to access the capital markets for debt and equity infusions throughout the relevant testing period, are sufficient for the Court to conclude that the Committee has not met its burden by a preponderance of the evidence. While it may be splitting hairs, the consequence of the analysis described in this opinion is not a determination that Iridium truly was solvent or adequately capitalized but rather that *the evidence presented by the Committee is insufficient to establish insolvency or unreasonably small capital* (emphasis added).³²

One can reasonably conclude from the courts' rationale in *Vlasic* and *Iridium* that contemporaneous market evidence when available should be addressed when assessing the valuation or solvency of a debtor as of a particular date. The authors of a paper focusing on valuation analyses in bankruptcy litigation observed that the courts' opinion in matters such as *Vlasic* and *Iridium*:

"teaches that if the plaintiff wants to improve the probability of prevailing in its avoidance action, it needs to have experts, well-versed in the academic literature of finance theory and capable of refuting the defendant's expert's testimony on the value of the debtor's market capitalization and any failure of the market to discover the debtor's true operating results. It appears increasingly clear that the federal trial courts and the appellate courts are not disposed to giving much credibility to the plaintiff's experts attacked as engaging in 'hindsight' valuations, prepared in support of the plaintiff's litigation objectives. The standard approaches to valuation such as discounted cash flows, comparable or guideline companies, and similar transactions, which require considerable sophistication and critical scrutiny of extensive financial data, are now being subordinated to expert testimony on market capitalization of publicly traded debtor corporations, at least in the context of what constitutes a 'fair valuation' of the debtor's property and amount of debts."³³

Notably, contemporaneous market data will not always establish that a debtor was solvent as of a particular date. *In re: TOUSA, Inc., et al.* ("TOUSA") provides an example where the plaintiff successfully used contemporaneous market data to establish that the debtor was insolvent as of the transfer date.

TOUSA

TOUSA is a fraudulent conveyance matter related to transfers and the incurrence of obligations that occurred less than six months prior to the debtor's bankruptcy filing. This lawsuit has had an interesting procedural history.³⁴ This lawsuit has also garnered attention for a variety of issues (e.g., related to savings clauses and reasonably equivalent value) that are unrelated to the market's assessment of the debtor's solvency. This section of the paper focuses on the court's use of contemporaneous market prices to assess the debtor's solvency as of the transfer date.

TOUSA provides some guidance as to how a court may address the solvency of debtors affected by the most recent financial crisis. *TOUSA* was a homebuilder focused on the Florida market.³⁵ The alleged fraudulent transfers and incurrence of obligations occurred on July 31, 2007. There was a credit crisis in August 2007. *TOUSA* filed for bankruptcy in early 2008.

The plaintiff argued that *TOUSA's* consolidated enterprise (and its main subsidiaries) was insolvent on the transfer date. The Florida real estate market had already begun to deteriorate, and the fact record contained many observations related to the adverse effects of this deterioration on *TOUSA's* business.³⁶ As discussed in more detail below, the plaintiff argued that the market values for *TOUSA's* equity and debt securities indicated that *TOUSA* was insolvent on the transfer date.

³⁴The Bankruptcy Court ruled in favor of the plaintiff. The District Court quashed the Bankruptcy Court's judgment as it pertained to one set of lenders and stayed the appeal of another set of lenders. The Appellate Court subsequently reversed the judgment of the District Court, affirmed the liability findings of the Bankruptcy Court, and remanded for further proceedings consistent with the Appellate Court's opinion. *In re: TOUSA, Inc.*, 680 F.3d 1298, 1301 (11th Cir. 2012).

³⁵*TOUSA* reported in its 2006 10K that the Florida market comprised 41 percent of its consolidated revenue from home sales during 2006. *TOUSA* also disclosed that 79 percent of its home sales during 2006 were priced at \$400,000 dollars or less.

³⁶For example, *TOUSA's* management observed that the outlook of the rating agencies for the home-building industry was "grim and getting grimmer." *TOUSA's* chief financial officer (CFO) noted "As CFO, and in light of all of this market uncertainty, I have absolutely no desire to fly this plane too close to the ground, achieve some from [sic] of consensual settlement today and crash within the upcoming year. That would be a [expletive removed]." *TOUSA*, 680 F.3d 1298, 1306.

³²*Ibid.*, 295–296.

³³Stan Bernstein, Susan H. Seabury, and Jack F. Williams, "Squaring Bankruptcy Valuation Practice with Daubert Demands," *ABI Law Review* 16 (2008):161–265 at 230.

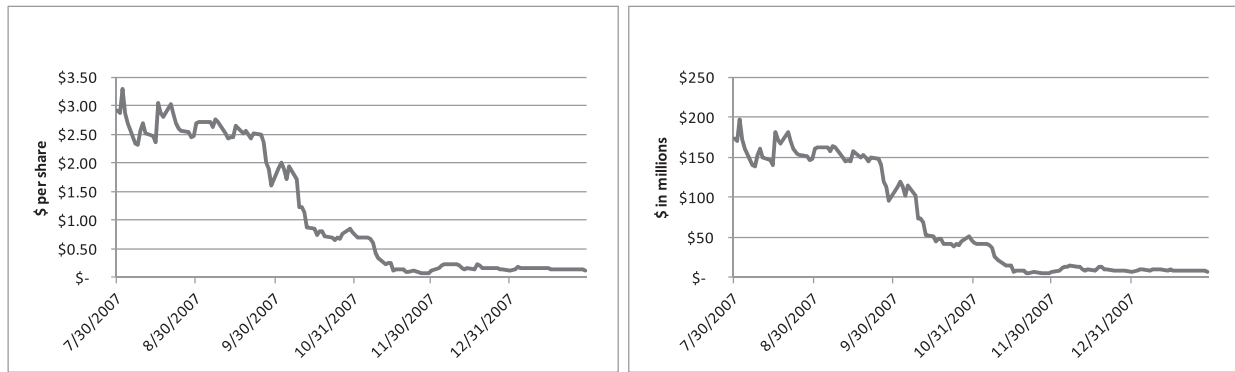


Figure 3
TOUSA's Share Prices (Left) and Market Capitalization (Right)

The defendant argued that TOUSA's consolidated enterprise (and its main subsidiaries) was solvent on the transfer date. A contemporaneous solvency opinion was procured that purported to show that TOUSA was solvent on July 31, 2007. (The second article in this series will address the Court's use of other contemporaneous indicia of insolvency.) The defendant also argued that TOUSA's subsequent bankruptcy filing approximately six months later was due to an unexpected downturn as result of the credit crisis. The defendant used colorful characterizations in the public domain for the unexpected downturn in the economy after July 31, 2007, such as Alan Greenspan's description of "a once in a century credit tsunami" and Warren Buffet's description of an "economic Pearl Harbor."³⁷

While the Bankruptcy Court had the opportunity to apply the principles from *Vlasic* and *Iridium* (which addressed transfers in the late 1990s) to a debtor affected by the more recent financial crisis in real estate, the Bankruptcy Court did not cite *Vlasic* or *Iridium* as precedent. Nevertheless, the Bankruptcy Court's use of market data to assess the debtor's solvency as of the transfer date was generally consistent with the approach used by the courts in *Vlasic* and *Iridium*.³⁸

The Bankruptcy Court found that the debtors were insolvent as of the transfer date. The facts in *TOUSA* provide a good contrast to the facts in *Vlasic* and *Iridium*. This matter provides a road map for a plaintiff that seeks to use market data to establish a debtor's insolvency.

TOUSA's financial condition as of the transfer date was substantially weaker than VFI's or *Iridium*'s financial condition as of the transfer dates in those

matters. For example, TOUSA's funded debt was more than *three times* VFI's funded debt,³⁹ yet TOUSA's market capitalization was *less than 20 percent* of VFI's market capitalization.⁴⁰ See Figure 3 for TOUSA's share prices and market capitalization between the relevant date and its bankruptcy filing.⁴¹

TOUSA's relatively weak financial condition can also be established through a comparison of bond prices. All of VFI's debt was funded at par on the transfer date.⁴² Conversely, TOUSA had over \$1 billion of bond debt (prior to the borrowing of an additional \$500 million that was the source of the alleged fraudulent transfer) that was trading at a substantial discount to par on the transfer date. The Bankruptcy Court observed that some of TOUSA's bonds were trading as low as 48 cents on the dollar on the transfer date.⁴³

Table 1 shows the face values (denoted as "Principal") and market values (denoted as "Price" and "Value") for each of TOUSA's debt securities based on data reported by Bloomberg as of July 31, 2007.⁴⁴ These securities traded between 48 cents and 81 cents on the dollar. The weighted average price for these securities was approximately 66 cents on the dollar. The cumulative "haircut" (i.e., difference between face and market values) on TOUSA's \$1.06 billion face value of debt securities was \$362 million.⁴⁵

³⁷*TOUSA*, 680 F.3d 1298, 1312.

³⁸Similar to the court's findings in *Vlasic* and *Iridium*, the Bankruptcy Court in *TOUSA* used contemporaneous market data in its analyses when applying other valuation methodologies too. This section of the paper focuses only on the valuation methodology that used market prices for the debtor's stock and debt instruments.

³⁹TOUSA's funded debt exceeded \$1.5 billion, while VFI's funded debt was \$500 million.

⁴⁰TOUSA's market capitalization was less than \$200 million, while VFI's market capitalization was approximately \$1.1 billion.

⁴¹Share prices were obtained from Bloomberg. Number of shares outstanding was obtained from TOUSA's SEC filings.

⁴²VFI was a newly created legal entity that raised \$500 million in debt proceeds (which were subsequently transferred to Campbell) on the transfer date.

⁴³*In re: TOUSA, Inc.*, 422 B.R. 783, 800 (Bankr. S.D. Fla., 2009).

⁴⁴The amounts in Table 1 do not include data for TOUSA's secured debt that was obtained in connection with the July 31, 2007, transfer.

⁴⁵The term "haircut" refers to the difference between face value and market value of the debt securities.

Table 1
Market Value of TOUSA’s Debt Securities as of the Transfer Date

	Principal (\$ in millions)	Maturity	Coupon	Price (100 = Par)	Value (\$ in millions)	Haircut (\$ in millions)
Senior Debt						
Security #1	250	4/1/2011	8.25%	79.50	199	51
Security #2	200	7/1/2010	9.00%	79.25	159	42
Security #3	100	7/1/2010	9.00%	80.75	81	19
Subtotal	550			79.64	438	112
Subordinated Debt						
Security #1	200	1/15/2015	7.50%	47.50	95	105
Security #2	185	7/1/2012	10.38%	55.50	103	82
Security #3	125	3/15/2011	7.50%	50.00	63	63
Subtotal	510			51.01	260	250
Total	1,060			65.87	698	362

The haircut on TOUSA’s debt was substantially greater than TOUSA’s market capitalization on the transfer date, which suggests (prior to the consideration of unexercised employee stock options and the potential for a control premium, which are discussed later) that TOUSA was insolvent on the transfer date. The haircut on TOUSA’s debt was approximately \$360 million. TOUSA’s market capitalization was approximately \$170 million. Therefore, the market value of TOUSA’s debt plus the market value of TOUSA’s equity was approximately \$190 million less than the face value of TOUSA’s funded debt.⁴⁶

The Bankruptcy Court concluded that “consolidated TOUSA’s debt exceeded the market’s valuation of its assets” after the transaction.⁴⁷ The plaintiff’s expert “calculated the sum of the market values of all of the consolidated TOUSA enterprise’s outstanding equity and debt instruments on July 31, 2007, to be \$1,530.5 million. Subtracting the face value of the debt and adding back cash (which could be used to pay off that debt) resulted in a net equity figure of negative \$189.4 million.”⁴⁸ The court found:

“[t]he fact that the Observable Market Value of the consolidated TOUSA enterprise on July 31, 2007, was smaller than the face amount of the debt it would be obligated to pay shows that it—and by extension, each of the Conveying Subsidiaries—was insolvent on that date.”⁴⁹

In a role reversal from *Vlasic* and *Iridium*, the defendant (as opposed to the plaintiff) in *TOUSA* sought to dismiss the relevance of contemporaneous market prices. Summa-

ries of the defendant’s expert’s arguments and the Bankruptcy Court’s findings are shown in Table 2.⁵⁰

The court in *TOUSA* extended the applicability of market data beyond its use in *Vlasic* and *Iridium* because the court used the market value of TOUSA’s consolidated enterprise to assess the (in)solvency of its subsidiaries. The focus on the consolidated enterprise was required because: (a) the parent company’s securities were publicly traded, while the subsidiaries’ securities were not publicly traded, and (b) an argument was successfully made by the plaintiff that the analysis should be focused on the subsidiary level. The Bankruptcy Court determined that the insolvency of the consolidated enterprise on the transfer date indicated that the subsidiary guarantors were also insolvent on the transfer date.

Can a Debtor with Contemporaneous Market Prices that Suggest Solvency Nevertheless Be Found Insolvent?

Some practitioners when commenting on the court’s decisions in *Vlasic* and *Iridium* have stated that the contemporaneous market prices are “a pretty good indicator of the fair valuation of a debtor’s company’s

⁵⁰The Bankruptcy Court’s opinion generally mirrored the plaintiff’s proposed findings of fact and conclusions of law. For example, the Bankruptcy Court adopted 446 of the plaintiff’s 448 proposed findings and conclusions in whole or in part while not adopting any of the defendants’ over 1,600 proposed findings and conclusions. The District Court referred to the Bankruptcy Court’s opinion as “practically a verbatim adoption” of the plaintiff’s proposed findings and conclusions. *In re: TOUSA Inc.*, 444 B.R. 613, 643 (U.S. Dist. 2011). The Appellate Court did not have to address solvency-related issues because the parties did not dispute the Bankruptcy Court’s findings regarding the balance sheet test, the capital adequacy test, or the ability to pay debts test in the appeal. The parties instead were focused on the reasonably equivalent value test. *TOUSA*, 680 F.3d 1298, 1311. As previously mentioned, the Appellate Court ultimately affirmed the Bankruptcy Court’s findings. Irrespective of one’s views on this fact pattern, the arguments contained in Table 2 contain a summary of how adverse parties can debate this subject.

⁴⁶The shorthand for this computation is \$170 million less \$360 million equals negative \$190 million.

⁴⁷*TOUSA*, 422 B.R. 783, 825.

⁴⁸*Ibid.*, 826.

⁴⁹*Ibid.*

Table 2
Summary of Arguments and Findings Re: TOUSA’s Securities

Defendant’s Expert’s Argument	Bankruptcy Court’s Finding
The market for the debtor’s securities may not have been efficient	The court found that there was “no reason to believe that [the plaintiff’s expert’s] analysis [based on contemporaneous market prices] suffers any inefficiency-related inaccuracies.”
The debtor’s bonds may have traded below par for reasons unrelated to the debtor’s creditworthiness	The court found that “there is no evidence that the trading prices for TOUSA’s bonds on July 31, 2007—lower than 50 cents on the dollar for some of TOUSA’s subordinated notes—resulted from any factors other than the market’s perception of the depressed fair value of TOUSA’s assets.”
A control premium should be added to the debtor’s market capitalization	“There is no evidence in the record that any outside purchaser was willing to pay any such premium for control of TOUSA, and consequently there is no factual basis for applying an increase to the observable traded value of TOUSA’s stock based on what such a hypothetical buyer might pay. And in any event, even if a control premium were applicable here, [the defendant’s expert] provides no measure of what it should be. There is thus no evidentiary grounding for the implausible notion that the stock, which had market value of \$170.5 million, should have been valued nearly \$190 million higher, as would have been necessary for TOUSA to be solvent under the Observable Market Method on July 31, 2007.”
TOUSA’s positive market capitalization impeaches an insolvency determination	The court noted that the stock prices for insolvent debtors are always positive. The court noted the plaintiff’s expert testimony that this may occur due to “option value.”

Source: *TOUSA*, 422 B.R. 783, 826, 827.

assets and amount of liabilities.”⁵¹ However, these contemporaneous market prices are not necessarily a “gavel down moment on the issue of insolvency in avoidance actions.”⁵² Sound advice for practitioners who seek to establish insolvency in this situation:

“is to be prepared to testify with humility, measured responsiveness to questions posed during cross-examination, and fair deference to the court if it asks any questions. Further, one must be prepared to testify exactly how one proceeded at every step along the way to prepare any valuation report, with a presentation of the methodology used in that process and the general acceptance of that methodology.”⁵³

The relative illiquidity of a debtor’s securities may be a point of contention in future lawsuits. Some practitioners may argue that the market prices for a debtor’s stock and/or debt securities were unreliable because the securities were thinly traded. These practitioners may proffer that the markets for these securities were not semistrong efficient (i.e., they did not reflect all publicly known information). Thus, the contemporaneous market prices were not a reliable indicator of the fair valuation of claims on the debtor at the time. Other practitioners may counter that the thinly traded nature of these securities was well known by market participants. Thus, this relative lack of

liquidity was incorporated (through a reduction in value relative to what these securities would be worth if they were actively traded) in contemporaneous market prices.

Nevertheless, a credible argument could be made that some relatively illiquid markets are not the most efficient processors of information. Perhaps finders of fact will use a process similar to *Vlasic* and observe the prices for the debtor’s stock and debt instruments after an “adequate” amount of time (likely days, not months or years) after the disputed transfer was disclosed to allow for information related to the disputed transfer to be processed. A collapse in market prices during the days after the disputed transfer was announced that results in insolvency may strongly suggest that the debtor was insolvent on the disputed transfer date.

Some practitioners may acknowledge that the markets for the debtor’s stock and/or debt securities were liquid (and therefore efficient processors of information) but may nevertheless argue that these markets were not fully informed of all pertinent information that was known or knowable at the time. The plaintiff took this approach in a case that was recently decided: *U.S. Bank National Association v. Verizon Communications Inc., et al.* (“*Idearc*”).⁵⁴ This matter focused on debt that was incurred to fund a distribution when *Idearc, Inc.*, was spun off from Verizon Communications, Inc. on November 17, 2006. The court observed:

⁵¹Stan Bernstein, Susan H. Seabury, and Jack F. Williams, “Squaring Bankruptcy Valuation Practice with Daubert Demands,” *ABI Law Review* 16 (2008):161–265, 233–234.

⁵²*Ibid.*

⁵³*Ibid.*

⁵⁴*U.S. Bank National Association v. Verizon Communications, Inc.*, 2013 WL 230329 (N.D. Tex., Jan. 22, 2013).

“[t]he Trustee argued at trial that, while it is normally true that the market price of a company’s stock is a reliable guide to value, in this case Verizon made misrepresentations and omissions about the business of Idearc that were material to the stock’s value. These misrepresentations and omissions, the Trustee urges, render the market price of Idearc’s stock an unreliable guide to its value.”⁵⁵

The plaintiff was unsuccessful in convincing the court that the market was misled as to Idearc’s true value as of the transfer date. The court found all of the alleged misrepresentations and omissions were either: (1) “actually disclosed” or (2) “apparently withheld from the market” but nevertheless “immaterial to Idearc’s value.”⁵⁶

Idearc is an interesting matter because the disputed transfer was made in late 2006, and the debtor filed for bankruptcy in early 2009. Thus, it is an example of how the court viewed a debtor that made a disputed transfer prior to the first credit crisis in the summer of 2007 and subsequently filed for bankruptcy after the credit crisis reached a full boil.

There does not appear to be a good teaching case that provides a road map for plaintiffs to successfully execute an insolvency analysis predicated on a fraud on the market argument in which the plaintiff did not also prevail on the actual intent provision.⁵⁷ As previously discussed, solvency analyses are only relevant when the plaintiff cannot establish actual fraudulent intent. However, there may be a case at some point in the future in which there may be no fraudulent intent but there may be sufficient (gross) negligence to render contemporaneous market prices unreliable. Perhaps the plaintiff will prevail by establishing that material information was in fact withheld from market participants and that incorporation of this information would result in insolvency as of the transfer date. In order to prevail, the plaintiff will have to meet its burden of proof obligation and in the process address key analytical challenges (e.g., temporal and aggregation) that are discussed in more detail later herein.

Using Market Data to Assess a Debtor’s Solvency or Insolvency

Contemporaneous market data often provide the most compelling evidence for the assessment of a debtor’s solvency or insolvency on a particular date. The courts in *Vlasic*, *Iridium*, *TOUSA*, and *Idearc* were all persuaded to a large extent by these data. Noteworthy articles and

papers have also extolled the virtues of contemporaneous market data.⁵⁸

The overview of the cases presented here shows how the courts used contemporaneous market data to establish the debtor’s solvency or insolvency as of the transfer date. These cases are based on the specific facts and circumstances of these matters and do not address all of the possible ways that the analysis can be performed. This section provides a practitioner’s perspective on other analyses that can be relevant when confronted with a fact pattern that differs from the fact patterns in these cases.

Market capitalization may understate the fair value of equity

The courts consistently used a traditional measure of market capitalization (current number of shares outstanding multiplied by share price) in *Vlasic*, *Iridium*, *TOUSA*, and *Idearc* to arrive at the fair value of the debtor’s equity. The use of a traditional measure of a debtor’s market capitalization, while well-grounded for the reasons mentioned by the courts in their opinions, may, in at least two instances, understate the fair value of a debtor’s equity. The first instance relates to unexercised employee stock options. The second instance relates to the observation that stock prices may reflect the value of shares on a minority-interest (as opposed to a controlling-interest) basis.

Unexercised employee stock options

The traditional measure of market capitalization ignores the value associated with unexercised employee stock options. The stock price for a debtor would be greater if these options did not exist⁵⁹ because the stock price incorporates the expected dilution from the exercise of unexercised employee options at some point in the future. However, the current number of shares outstanding does not include shares from unexercised employee stock options because they have not yet been

⁵⁸Examples include Michael W. Schwartz and David C. Bryan, “Campbell, Iridium, and the Future of Valuation Litigation,” *Business Lawyer* 67(4)(2012):939; Michael Simkovic and Benjamin S. Kaminetzky, “Leverage Buyout Bankruptcies, the Problem of Hindsight Bias, and the Credit Default Swap Solution,” *Columbia Business Law Review* 2011:118; Stan Bernstein, Susan H. Seabury, and Jack F. Williams, “Squaring Bankruptcy Valuation Practice with Daubert Demands,” *ABI Law Review* 16 (2008):161–265; and Robert J. Stearn, Jr., “Proving Solvency: Defending Preference and Fraudulent Transfer Litigation,” *Business Lawyer* 62(4)(2007):939.

⁵⁹This observation is not a commentary on the merit of issuing employee stock options and the value companies receive in exchange for employees’ services. Rather, this observation is focused on the fact that the market takes into account the benefits and costs of employees’ contributions. The existence of employee stock options affects the market price for a company’s stock, and practitioners’ analyses should take this fact into account.

⁵⁵*Ibid.*, *10.

⁵⁶*Ibid.*

⁵⁷Enron is an example where the price for the debtor’s securities was not reflective of the debtor’s true value due to fraudulent actions.

issued. Thus, the traditional measure of market capitalization understates the fair value of a debtor's equity because it *ignores* a component of a debtor's capital structure.

The ignoring of unexercised employee stock options matters because courts and practitioners often use the market capitalization of the debtor (when available) in their assessment of the debtor's solvency. The market capitalization is a component in the determination of the debtor's enterprise value.⁶⁰ The resulting enterprise value is then compared with the face value of the debtor's funded interest-bearing debt obligations.⁶¹ Thus, any approach that systematically understates the debtor's market capitalization will in turn systematically understate the debtor's enterprise (and asset) value. The systematic understatement of the debtor's enterprise (and asset) value can lead to an erroneous conclusion that the debtor was insolvent.⁶²

This concept is perhaps best demonstrated through an example. Assume a debtor has ten shares outstanding, and its stock trades at \$10 per share on Monday. Also assume that this debtor has no employee stock options. This debtor has a market capitalization of \$100, and the fair value of its equity is also \$100 on Monday. Now assume a lucky employee is granted the option on Tuesday to buy ten shares with a zero strike price and that this option vests on Wednesday. Also assume that there were no changes in the debtor's prospects between Monday and Tuesday. The fair value of the debtor's equity is still \$100 on Tuesday, but the allocation of this value is now split fifty-fifty between the existing shareholders and the lucky employee with the unvested employee stock options. Therefore, the stock price will decline to \$5 per share, and the market capitalization will decline to \$50 on Tuesday (ten shares outstanding \times \$5 per share =

\$50) after the announcement of the employee stock option grant. Any analysis of this debtor's market capitalization on Tuesday must take into account the fact that the stock trades at \$5 (and not \$10) per share because the market is anticipating the dilution from the additional 10 shares that can be issued to the lucky employee at no cost to the employee on Wednesday.^{63,64}

Practitioners do not need to address the fair value of unexercised employee stock options when the debtor is comfortably solvent based on the traditional measure of market capitalization. The inclusion of the fair value for these options will only make the debtor appear more solvent. Therefore, a simple and conservative approach for a practitioner who determines that a debtor is solvent is to ignore the fair value of these options. However, practitioners who arrive at an insolvency determination should recognize that unexercised employee stock options are part of the debtor's capital structure that should not be ignored.

Practitioners should pay close attention to the fair value of unexercised employee stock options when the debtor is borderline insolvent or solvent. The inclusion of the fair value for this component of the debtor's capital structure may be the difference between an insolvency and solvency determination.

The number of common shares that are expected to be issued at some point in the future for unexercised employee stock options can be difficult to identify. Fortunately, companies often disclose the number of common shares that would be outstanding if unexercised employee stock options were exercised on the balance sheet date. The number of current common shares outstanding plus dilution from unexercised employee stock options is referred to as the number of fully diluted common shares in accounting parlance. Unfortunately, "fully diluted" is somewhat of a misnomer because it is often computed using the treasury stock method, which assumes all in-the-money unexercised employee stock options are

⁶⁰Enterprise value is typically computed by adding the debtor's market capitalization and the market value of the debtor's funded interest-bearing debt obligations.

⁶¹This analysis can also be performed by converting enterprise value to asset value and comparing the resulting asset value to the face value of most liabilities and the expected value of contingent liabilities.

⁶²This discussion has been focused on the balance sheet test of solvency. It should be noted that the so-called dilution can have positive effects on a debtor's liquidity and capital adequacy, which are addressed by the adequate capital and ability to pay debts tests of solvency. This facially counterintuitive result occurs for two reasons. First, the debtor can receive cash from the employee when it issues the stock out of its treasury. (The opposite can also occur when the debtor uses a stock buy-back program to mitigate the dilutive effect of employee stock options). Second, the debtor can receive a tax deduction for the expense related to the dilution (i.e., the difference between the value of the stock and the strike price). The debtor cannot compel exercise, so these benefits should not reflexively (without any analysis) be included in analyses for the adequate capital and ability to pay debts tests.

⁶³This is admittedly an extreme example designed to demonstrate the concept. However, there may be instances when a debtor is only insolvent by a "small" amount based on publicly traded prices. In these instances, the inclusion of employee stock options could be the difference between an insolvent and solvent determination.

⁶⁴Consider the alternative to ignoring the expectations for future dilution. A focus only on market capitalization would indicate that the fair value of this debtor's equity was \$100 on Monday, \$50 on Tuesday, and \$100 on Wednesday. Nobody would rationally sponsor an opinion that this was the case. Nevertheless, this is the logic that is implicitly adopted when one ignores the dilutive effect of employee stock options on a debtor's market capitalization.

exercised on the balance sheet date. Thus, the “fully diluted” number of shares ignores the post–balance sheet date option value (i.e., time premium in option valuation parlance) for unexercised employee stock options, which results in an understatement of the expected dilution. For example, a substantial amount of unexercised employee stock options with a long time until expiration and a strike price that was just a penny less than the balance sheet date stock price would have *substantial value*, yet they would be treated as if there was *no effect* on the calculation of fully diluted shares. Practitioners should be aware of these issues and carefully analyze other disclosures (e.g., the valuation of employee stock options through the use of option pricing models) for additional contemporaneous assumptions that could assist in the valuation of this portion of the debtor’s capital structure.

This section has focused on employee stock options because they affect virtually every debtor. Practitioners should be aware of other instances (e.g., convertible debt or convertible preferred stock)⁶⁵ that affect a lesser number of debtors. Debtors with convertible debt and/or convertible preferred stock will often have common stock prices that reflect the expected dilution associated with these securities. Practitioners should identify the value associated with this dilution and incorporate it into their business valuation of the debtor for the same reasons as mentioned here for unexercised employee stock options.

Minority interest vs. controlling interest

The prevailing stock price reflects the market clearing price for a minority interest in the equity of a company. This is so because the stock price reported in the *Wall Street Journal* or *Bloomberg* reflects trades of minority interests (<50% ownership blocks). These stock prices may or may not reflect the value of a controlling interest in the same company.

There is a debate among practitioners as to whether a controlling interest in a company is typically worth more

than the prevailing stock price on a pro rata basis.⁶⁶ This debate matters because solvency analyses should be based on the valuation of a controlling interest in the debtor. This is so because the required valuation is of the debtor’s entire enterprise (i.e., all of the equity and debt claims on the debtor), not a minority interest in the equity of the debtor.

One group of practitioners believes that a controlling interest is almost always worth more than the prevailing stock price on a pro rata basis. Support for their position consists of two central observations. First, a controlling interest is inherently more valuable than a minority interest due to the benefits of control, which include the right to change management or dividend policy. Put simply, it is often better to have control than to not have control of a company. Second, change-in-control transactions typically occur at a premium to the prevailing stock price. This observation suggests that buyers are willing to pay more for a controlling interest than they are for a minority interest in the same company. These practitioners can also point to the Delaware Chancery Court’s practice of adding a control premium to the prevailing stock price when trying to value the proportionate going concern value for a minority interest in a company.⁶⁷

The other group of practitioners believes that a controlling interest is almost always worth the same as the prevailing stock price on a pro rata basis. Support for their position also consists of two central observations. First, a semistrong efficient market should price the current expectations for a potential change-in-control transaction into the prevailing stock price. For example, the stock price typically increases when news leaks that a company may be a takeover target. Second, the relatively few change-in-control transactions that occur at all (let alone at a premium to the prevailing stock price) in any given year suggest that most companies’ stocks trade at a controlling interest

⁶⁵Preferred stock is interesting in its own right because it can have characteristics of both debt and equity. One practitioner observes that “courts generally treat preferred stock (including mandatory redeemable preferred stock), as well as other instruments such as options or warrants, as equity.” Robert J. Stearn, Jr., “Proving Solvency: Defending Preference and Fraudulent Transfer Litigation,” *Business Lawyer* 62(4)(2007):939. The characterization of preferred stock as debt or equity is particularly relevant when assessing the right-hand side of the balance sheet test. Characterizing preferred stock as equity is accretive from a solvency determination perspective, while characterizing it as debt is dilutive from a solvency determination perspective because it has no equity value and it increases the amount of debt on the right-hand side of the balance sheet test.

⁶⁶Consider a company for which shares trade at \$10 per share. Proponents of “a minority interest equals controlling interest value” believe all of the debtor’s shares are worth \$10 on a controlling interest basis. Proponents of “a controlling interest is typically worth more than a minority interest value” believe all of the debtor’s shares are worth more than \$10 on a controlling interest basis because the prevailing stock price incorporates an implied minority interest discount. All of the debtor’s shares are ultimately worth the same in a change-in-control transaction because minority interest shareholders receive the same price as controlling interest shareholders on a pro rata basis due to piggyback rights.

⁶⁷See Lawrence A. Hamermesh and Michael L. Wachter, “The Short and Puzzling Life of the ‘Implicit Minority Discount’ in Delaware Appraisal Law,” 156 U. Pa. L. Rev. 1 (2007), and Gilbert E. Matthews, “Misuse of Control Premiums in Delaware Appraisals,” *Business Valuation Review* 27(2) (Summer 2008):107–118.

valuation.⁶⁸ Put simply, more transactions would be expected to occur if the “highest and best use” of the debtor’s assets was in the hands of another owner. These practitioners also argue that the Delaware Chancery’s Court practice of adding a control premium to the prevailing stock price when at least one of the side’s experts advocates for its use occurred due to an accident of circumstances.⁶⁹

Further complicating the debate is the fact that there are arguably limited data available for assessing control premiums that were paid in precedent transactions. As discussed earlier herein, there are relatively few change-in-control transactions in a given year. The reported premiums in those relatively few transactions are sometimes referred to as acquisition premiums instead of control premiums. An acquisition premium can differ from a control premium because it can include components of value (e.g., synergistic benefits) that are unique to a specific buyer.⁷⁰

⁶⁸See Hamermesh and Wachter, “The Short and Puzzling Life,” and Matthews, “Misuse of Control Premiums in Delaware Appraisals.” Also, see Z. Christopher Mercer and Travis W. Harms, *Business Valuation: An Integrated Theory* (Hoboken, NJ: Wiley Finance, 2008). This is an important observation. Some practitioners automatically include control premiums because reported data show that change-in-control transactions typically occur at a premium to the prevailing stock price. However, practitioners should also recognize that a very small percentage of the publicly traded company universe enters into a change-in-control transaction each year. Therefore, the sample size is small, and the potential for selection bias is large. This is not to say that a finding from a small sample size cannot be extrapolated to the remainder of the population. Statisticians and auditors do it all of the time. However, statisticians and auditors only extrapolate their findings from a small sample when the sample is deemed to be representative of the larger population. Practitioners should be aware of the potential for selection bias when analyzing change-in-control premiums. This sample only includes instances in which a willing buyer and willing seller were able to agree to terms. The sample may be skewed towards companies that are viewed to be undervalued by the market or are more likely to generate synergies with the buyer than other companies.

⁶⁹See Hamermesh and Wachter, “The Short and Puzzling Life.” The authors explain that the first case that applied a control premium did so because all of the experts (including the expert retained by the side that advocated for a relatively low valuation) did so. The authors explain that the consistent use of a control premium became indoctrinated when the expert (Dr. Shannon Pratt) who did not believe a control premium should be added previously wrote in his valuation treatise that a control premium usually should be added. Interestingly, Dr. Pratt (and Mr. Mercer, who was also cited for the proposition that a control premium should consistently be added) no longer takes that position. One valuation practitioner (Gilbert Matthews) has “acknowledged the irony that ‘neither Pratt nor Mercer currently support the position that the courts keep citing them for!’” Gilbert E. Matthews, “Implied Minority Discount in Statutory Fair Value: The Doctrine that Just Won’t Die,” BVUpdate, p. 3 (December 2009).

⁷⁰For a survey of commentators’ views on control premium data, see James Hitchner, “Control Premiums and Minority Discounts in Operating Businesses: The Facts, the Fiction and the Figments,” *Financial Valuation and Litigation Expert* 35 (Feb/Mar 2012). The author concludes that control premiums should be based on adjustments to expected cash flows and should not be based on an arbitrary and unsupported control premium that is implied when a publicly traded company is acquired. Also see Matthews, “Misuse of Control Premiums in Delaware Appraisals.”

This is an interesting debate in the context of a solvency analysis. The courts in several cases that assessed the solvency of a debtor have explicitly or implicitly taken the position that the debtor’s stock traded in a semistrong efficient market. This observation could suggest that the “minority interest equals controlling interest value” argument should prevail. However, even practitioners that advocate against the standard use of control premiums “believe that the finance evidence firmly supports a conclusion that there are benefits of control—that is, in an acquisition context, control shares can sell at a premium to noncontrol shares.”⁷¹ These practitioners make a nuanced argument: “[a]t least four of the five elements that determine the size differentiation between control shares and non-control (‘minority’) shares are not elements that a dissenting shareholder can or should recover from a cash-out transaction.”⁷² Practitioners must consider whether these elements for control premiums should be included in a solvency analysis.

The applicable standard of value (which will be discussed in the third paper of this series) may play a critical role in assessing the appropriateness of control premiums. The general benefits of control are likely applicable under many different standards of value. However, the other benefits of control (which can include synergistic value) may be applicable under a fair market value standard but not applicable under a fair value standard. The courts in *Vlasic*, *Iridium*, *TOUSA*, and *Idearc* did not need to address this finer point.

Fortunately, practitioners that believe the debtor is solvent based on the debtor’s prevailing stock price (e.g., the debtors in *Vlasic*, *Iridium*, and *Idearc*) don’t have to wade too deeply into this debate. The inclusion of a control premium in these situations will only make the debtor appear more solvent. Thus, any practitioner who believes the debtor is solvent can effectively “punt” on this issue.

However, this issue can be very relevant when the debtor appears to be insolvent based on its prevailing stock price (e.g., the debtor in *TOUSA*). The inclusion of a control premium in this situation can be the difference between insolvency and solvency determinations. As discussed previously, the Court in *TOUSA* acknowledged this potential outcome and explained why the inclusion of a control premium would not result in a finding of solvency in that particular matter.

Let us assume that a control premium should be added to the prevailing stock price for a particular debtor. There

⁷¹Hamermesh and Wachter, “The Short and Puzzling Life.”

⁷²*Ibid.*

are still two important questions that need to be answered. How much of a control premium should be added? Why would a rational buyer pay a control premium to acquire the equity of an insolvent entity? We will address both of these questions.

How much of a control premium should be added?

The quantification of a control premium is dependent on the facts and circumstances for each company. There are no “rules of thumb” or “one size fits all” approach that can be consistently applied. However, there are two concepts that practitioners should be aware of when performing solvency analyses. First, the amount of the control premium can be negatively correlated with the current state of the debtor’s business. Second, practitioners should focus on control premiums expressed in asset (and not equity) terms.

Negative correlation with current state of business

While it may seem counterintuitive, the amount of the control premium can be negatively correlated with the current state of the debtor’s business. The basis for this observation is simple. Absent the potential for synergies, control (or acquisition) premiums should be relatively low for debtors that are well managed. For example, many investors in Berkshire Hathaway want Warren Buffet to control the company and presumably would not offer a substantial control premium in order to “fire” Warren Buffet. Conversely, control premiums can be relatively high when the debtor is poorly managed and/or overleveraged because these problems can be “fixed” in a change-in-control transaction. The “highest and best use” for poorly managed and/or overleveraged debtors is often in the hands of another owner.

Control premium expressed in asset terms

Practitioners should not fall into the trap of focusing on control premiums expressed in equity terms, even though control premiums are often reported in the context of equity. For example, a \$10 premium on a \$50 stock is often reported as a 20% control premium on equity.⁷³ Reporting in the context of equity is logical because equity investors are the recipient of the control premium. However, investors that pay control premiums to shareholders do so in order to gain control of the debtor’s *assets*. Therefore, control premiums reported in the context of assets are more relevant for analytical purposes. The data as reported could be referred to as

⁷³Computed as \$10 divided by \$50 equals 20%.

“equity premiums,” while the more analytically relevant data could be referred to as “asset premiums.”

The interpretation of a control premium can be substantially different when viewed in the context of assets instead of equity. For example, a 100% control premium for a debtor’s equity translates into a 100% control premium for assets when the debtor has no debt and a 20% control premium for assets when the debtor has 80% debt in its capital structure. See Table 3, which shows that the control premium on assets decreases as leverage increases (holding everything else constant).⁷⁴ A practitioner may reflexively conclude that a 10% control premium on equity appears too low, and a 100% control premium on equity appears too high. However, as shown in this example, a “high” control premium on equity can also be consistent with a “low” control premium on assets for highly leveraged debtors.⁷⁵ Practitioners should not arbitrarily dismiss a reasonable control premium when expressed in asset terms simply because it may appear to be unreasonable when expressed in equity terms.

The control premium on assets is more relevant than the control premium on equity due to the “no arbitrage” principle. Arbitrage in this context refers to the ability to lock in a riskless profit using publicly available information. Arbitrage opportunities are not readily available in semistrong efficient markets. If the no arbitrage principle were violated, a buyer could acquire the assets of a leveraged company for a relatively low control premium, retire the debt, and then immediately sell the company to another buyer for a relatively high control premium and generate a risk-free profit from the difference in control premiums. An informed seller of the leveraged company would not allow this outcome to occur. Thus, the control premium on assets is analytically more relevant than the control premium on equity.

The discussion here and the sensitivity table in Table 3 illustrate an important point that may not be clear when reading the Bankruptcy Court’s findings in *TOUSA*.⁷⁶ The Bankruptcy Court in *TOUSA* dismissed the applicability of

⁷⁴A company that is 100% leveraged effectively has no leverage because the creditors effectively own the equity. It is for this reason that the amount of debt in Table 3 is capped at 90% of the debtor’s capital structure.

⁷⁵For example, a 100% control premium on equity for a debtor with 80% leverage is 20% when expressed in asset terms, while a 20% control premium on equity for a debtor with no leverage also translates into a 20% control premium when expressed in asset terms. It would be arbitrary and inconsistent to conclude that the 20% control premium on equity is reasonable (with no leverage) while simultaneously concluding that the 100% control premium on equity (with 80% leverage) is unreasonable when both amounts are equal when expressed in asset terms.

⁷⁶Recall that the Bankruptcy Court’s findings in *TOUSA* regarding solvency were not the subject of the appeal. The appeal focused primarily on reasonably equivalent value arguments.

Table 3
Control Premium Sensitivity Analysis

Control Premium in Terms of Assets when Debt as a % of Debtor's Assets Is	Control Premiums as Percent of Equity									
	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
10%	9%	18%	27%	36%	45%	54%	63%	72%	81%	90%
20%	8%	16%	24%	32%	40%	48%	56%	64%	72%	80%
30%	7%	14%	21%	28%	35%	42%	49%	56%	63%	70%
40%	6%	12%	18%	24%	30%	36%	42%	48%	54%	60%
50%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
60%	4%	8%	12%	16%	20%	24%	28%	32%	36%	40%
70%	3%	6%	9%	12%	15%	18%	21%	24%	27%	30%
80%	2%	4%	6%	8%	10%	12%	14%	16%	18%	20%
90%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%

the control premium implied by the defendant's expert, which would have resulted in the debtor's solvency as of the transfer date, in part because the dollar value of the control premium (almost \$190 million) would have to have been greater than the debtor's market capitalization (approximately \$170 million). This implied control premium would have been greater than 110% when expressed in equity terms.⁷⁷

However, the Bankruptcy Court also found that the debtor's asset value was approximately \$1.5 billion. Therefore, the hypothesized \$190 million control premium translated into less than a 13% control premium when expressed in asset terms.⁷⁸ This observation does not mean that the Bankruptcy Court erroneously concluded that the debtor was insolvent, because the Bankruptcy Court's decision to exclude a control premium was based on the facts and circumstances of that matter.⁷⁹ However, practitioners should be aware that a 13% control premium expressed in asset terms (even when the control premium is greater than 110% when expressed in equity terms) may be appropriate when combined with different circumstances than were present in *TOUSA*.

Why would a rational buyer pay a control premium to acquire the equity of an insolvent entity?

Companies are typically worth more, and are often worth substantially more, as going concerns outside of bankruptcy than they are as reorganized or liquidating entities inside of bankruptcy. For example, we observe that creditors will sometimes engage in reorganizations

(e.g., debt exchange offers) that keep a debtor out of bankruptcy. Also, we observe that buyers pay a control premium in order to preserve the value of a debtor's assets, which may be substantially reduced after a bankruptcy filing.

Consider a modestly leveraged debtor infected with a computer virus that will render all of its assets worthless in ninety days. Assume this debtor has no ability to fix this computer virus. This debtor is clearly insolvent as its demise is clearly foreseeable. Now assume a potential buyer has the ability fix the computer virus within ninety days and preserve the value of the debtor's assets. This debtor is clearly solvent if it comes to be owned by the potential buyer.

Is this debtor insolvent or solvent prior to the sale to a potential buyer? The plaintiff will likely argue for insolvency based on the debtor's inability to fix the computer virus. The defendant will likely argue for solvency based on the potential buyer's ability to fix the computer virus. The right answer could depend on the standard of value (which will be discussed in the third paper of this series) used in the valuation. A solvency determination is ultimately dependent on the potential buyer's willingness to share some of the synergistic value it brings to the table when it fixes the computer virus.

Why would the potential buyer share some of the synergistic value it brings to the table with the seller? The potential buyer's ability to fix computer viruses can be a very valuable asset, but the potential buyer needs companies infected by computer viruses in order to monetize it. Assume the modestly leveraged debtor with the computer virus is the only such company that can benefit from the potential buyer's ability to fix computer viruses. Both buyer and seller need each other in this situation, and the buyer's payment of a control premium

⁷⁷Computed as \$190 million divided by \$170 million.

⁷⁸Computed as \$190 million divided by \$1.5 billion.

⁷⁹Recall that the Bankruptcy Court found "even if a control premium were applicable here, [the defendant's expert] provides no measure of what it should be." *TOUSA*, 422 B.R. 783, 827.

that shares some of the incremental value with the seller is a “win/win” situation for both parties.

The computer virus example may sound far-fetched, but let us examine an example that could be very real. Assume the debtor was affected by a lack of liquidity or covenant defaults instead of a computer virus and that its primary assets were customer contracts that would no longer be in force after a bankruptcy filing. Also assume the potential buyer and seller are members of an industry with substantial competition among a few firms and the potential buyer has very few strategic acquisition targets. The potential buyer in this situation may conclude that the seller’s assets are worth substantially more outside of bankruptcy and as a result be willing to share some of the synergistic value that it brings to the table in order to acquire the seller’s valuable customer contracts.

Focusing on Debt Prices May Understate the Haircut on All Debt Obligations

The analyses performed by the courts in *Vlasic*, *Iridium*, and *TOUSA* all focused on market prices for the debtor’s debt instruments when available. These analyses appear to be appropriate given the fact patterns in these cases.

However, there will be some instances when a focus on market prices for the debtor’s debt instruments is incomplete. For example, some debtors have additional debt obligations that are not priced in the marketplace on the transfer date. Or, other debtors have relevant liabilities that are not incorporated in the assessment of a debtor’s debt instruments on the transfer date.

Debt without market prices

Sometimes market data for the debtor’s debt instruments is easy to obtain. For example, debt that is funded on the transfer date (as was the case in *Vlasic*) has a clear market indication for its fair value as of the transfer date. Other debtors have capital structures where most of their debt instruments are publicly traded (the debtor in *TOUSA* is generally consistent with this example) on the transfer date.

Unfortunately, there are other instances where market data for most of the debtor’s debt instruments are not available or are difficult to obtain on the transfer date. Nevertheless, these debt instruments should be considered in any solvency analysis. The relevance of including debt instruments that do not have direct market indications for their market value depends on the financial condition of the debtor.

A debtor that is comfortably solvent will likely have debt that is valued near par, so the exclusion of debt instruments that do not have a current market indication

for its fair value is not particularly relevant. However, a debtor that is not comfortably solvent is more likely to have debt with a fair value at a meaningful discount to par. The failure to include all of this debtor’s debt instruments in the analysis in this situation could lead to the erroneous conclusion that the debtor was solvent.

Fortunately, many companies are required to report the fair value for all of their financial instruments (including debt) in the footnotes of their financial statements. These disclosures were generally required once a year (at fiscal year-end) through December 31, 2008, in accordance with accounting guidance Statement of Financial Accounting Standards (SFAS) 107, and have been generally required four times a year (at each fiscal quarter-end) beginning June 30, 2009, in accordance with SFAS 107-1.⁸⁰ These disclosures reflect contemporaneous valuations performed by the debtor that are audited (fiscal-year-end disclosures) or reviewed (quarterly disclosures) by the debtor’s auditors. In accordance with accounting guidance SFAS 157, these disclosures typically follow a hierarchy, where market prices for the company’s or similar debt instruments are used when available.⁸¹

The disclosures required under SFAS 107 and SFAS 107-1 provide a simple and objective way to compare the fair values of all of a debtor’s debt instruments to their book values. These disclosures effectively do the job for the practitioner because they reflect the contemporaneous debt valuations that were performed by the debtor’s management and audited or reviewed by the debtor’s auditor.

The relevance of SFAS 107 and SFAS 107-1 disclosures is perhaps best shown through an example. Let us examine General Motors’ (“GM”) financial statements prior to its bankruptcy filing. Table 4 summarizes GM’s disclosures as of December 31, 2008. The reported fair values of GM’s debt instruments were almost \$30 billion less than their book values. GM’s market capitalization was less than \$2 billion on December 31, 2008. Therefore, GM was insolvent by almost \$28 billion using the same methodology that the court applied in *Vlasic*, *Iridium*, *Idearc*, and *TOUSA*. See Table 5. This result is not surprising given GM’s

⁸⁰Statement of Financial Accounting Standards 107 (and 107-1) were available prior to and/or during the most recent financial crisis. SFAS 107 was subsequently replaced with Accounting Standards Codification 825. This paper refers to SFAS 107 because it was the accounting guidance available prior to and during the most recent financial crisis.

⁸¹Statement of Financial Accounting Standards 157 (and 157-1, 157-2, 157-3, and 157-4) were available prior to and/or during the most recent financial crisis. SFAS 157 was subsequently replaced with Accounting Standards Codification 820. This paper refers to SFAS 157 because it was the accounting guidance available prior to and during the most recent financial crisis.

Table 4

GM's Fair Value of Debt Disclosure as of December 31, 2008²⁰

	Fair Value (\$ in billions)	Book Value (\$ in billions)	Variance
Automotive and Other	14.9	44.4	(29.5)
FIO	1.2	1.2	(0.0)
Total	16.1	45.6	(29.6)

Source: GM's 2008 10K, footnote 20.
FIO, financing and insurance operations.

financial condition as of December 31, 2008, and subsequent bankruptcy filing early in 2009. The calculations in Tables 5 and 7 use gross debt, not net debt. A credible argument can be made to support the use of net debt (recall that the Court in TOUSA used net debt). For purposes of this example, the observations re: solvency are the same if gross or net debt is used.

Compare that to GM's disclosures as of December 31, 2007. The reported fair values of GM's debt instruments were almost \$7.5 billion less than their book values. See Table 6. GM's market capitalization was greater than \$15 billion on December 31, 2007. Therefore, GM was solvent by \$7.5 billion using the same methodology that the court applied in *Vlasic*, *Iridium*, and *TOUSA*.⁸² See Table 7. This result suggests that GM became insolvent at some point between December 31, 2007 and December 31, 2008.

Practitioners should obtain and analyze the underlying accountant's work papers for the fair value of debt instruments disclosures. The debtor often creates work papers in the first instance that contains the valuations, while the auditor typically performs additional testing procedures that are documented in the auditor's work papers. Both sets of work papers are often produced in discovery.

Assume the practitioner needed to assess GM's solvency as of February 28, 2008. The practitioner may be able to identify a reasonable facsimile of what the fair value of debt disclosure would have been on this date

Table 5

GM's Market Valuation as of December 31, 2008

Market Value of Equity (1.9) + Market Value of Debt (16.1) = Market Value of Invested Capital (18.0) – Carrying Value of Debt (45.6) = Insolvency Amount (27.6) (\$ in billions)

The source for Table 5 is Table 4 and Bloomberg.

⁸²GM would be even more solvent if the fair value of unvested employee stock options is included and a control premium is deemed to be appropriate.

Table 6

GM's Fair Value of Debt Disclosure as of December 31, 2007²⁰

	Fair Value (\$ in billions)	Book Value (\$ in billions)	Variance
Automotive and Other	30.7	38.1	(7.4)
FIO	4.9	4.9	0.0
Total	35.6	43.0	(7.4)

Source: GM's 2008 10K, footnote 20.
FIO, financing and insurance operations.

using the same methodology and data sources that GM itself used contemporaneously.

Practitioners should also be aware of an accounting rule that may lead to erroneous conclusions. Companies are allowed to carry some of their debt instruments at fair value instead of book value. Consider a company that has \$10 in face value of debt that has a fair value of \$8. The disclosure will show a book value of \$8 (as opposed to \$10) if the company elected to carry this debt at fair value. The practitioner would incorrectly conclude that there was no haircut on the debt if he or she simply compared the \$8 book value with the \$8 fair value. Fortunately, many companies have not carried their debt at fair value. Nevertheless, in order to avoid erroneous conclusions, practitioners should understand the method of accounting used by the debtor.

Relevant liabilities should be included in the analyses of debt with market prices

Practitioners can arrive at starkly different conclusions when analyzing similar market data. While the previous analysis suggests that GM was solvent based on contemporaneous market values for its debt instruments and equity on December 31, 2007, authors of one paper analyzed credit default spreads on GM's debt instruments and concluded that these market participants predicted GM's bankruptcy filing as far back as June 2006.⁸³ This comparison on the surface suggests that different sets of

Table 7

GM's Market Valuation as of December 31, 2007

Market Value of Equity (15.0) + Market Value of Debt (35.6) = Market Value of Invested Capital (50.6) – Carrying Value of Debt (43.0) = Solvency Amount (7.5) (\$ in billions)

The source for Table 7 is Table 6 and Bloomberg.

⁸³Michael Simkovic and Benjamin S. Kaminetzky, "Leveraged Buyout Bankruptcies, the Problem of Hindsight Bias, and the Credit Default Swap Solution," *Columbia Business Law Review* 2011:118.

Table 8
Debt Valuation that Results in TOUSA's Business Value = Face Value of Debt

	Principal (\$ in millions)	Maturity	Coupon	Price (100 = Par)	Value (\$ in millions)	Haircut (\$ in millions)
Senior Debt						
Security #1	250	4/1/2011	8.25%	101.07	253	(3)
Security #2	200	7/1/2010	9.00%	100.75	201	(1)
Security #3	100	7/1/2010	9.00%	102.66	103	(3)
Subtotal	550			101.24	557	(7)
Subordinated Debt						
Security #1	200	1/15/2015	7.50%	60.39	121	79
Security #2	185	7/1/2012	10.38%	70.56	131	54
Security #3	125	3/15/2011	7.50%	63.56	79	46
Subtotal	510			64.85	331	179
Total	1,060			83.73	888	172

market participants (trades of equity and debt instruments vs. trades of credit default swaps) arrived at starkly different determinations of GM's financial condition. Alternatively, this comparison suggests that different practitioners analyzing similar data may arrive at starkly different determinations of GM's financial condition. Either suggestion does not bode well for the ability to develop a template that can be reliably applied to determine a debtor's (in)solvency using contemporaneous market data.

Fortunately, neither suggestion appears to be correct. There is likely a missing piece in the analysis of GM that is shown in Tables 4 through 7—the haircut on other liabilities. GM had tens of billions of dollars in face value of liabilities associated with pensions and postretirement health obligations that were not included in the SFAS 107 disclosures. The analysis of GM contained in Tables 4 through 7 implicitly assumes that the fair values of these liabilities were equal to their face values. That is likely an erroneous implied assumption, and restating these liabilities to their fair values would likely go a long way toward reconciling the analyses of GM contained in Tables 4 through 7 and summarized in the cited paper.

Analysis when only market equity prices or fair value of debt are available, but not both

One common situation confronting practitioners is a debtor whose equity is closely held but whose debt is publicly traded. Many leveraged buyouts are structured in this manner. The market prices for the debt instruments available for these debtors provide contemporaneous market data that can be analyzed to assess a debtor's solvency as of a particular date.

Another equally common situation confronting practitioners is a debtor whose equity is closely held and whose debt is not publicly traded. Fortunately, as previously

discussed, most companies following generally accepted accounting principles (GAAP) were required to report the fair value of their debt instruments on a yearly basis through December 31, 2008, and on a quarterly basis beginning June 30, 2009. Therefore, data are often available to assess a debtor's solvency based on contemporaneous market data even when the debtor's stock and debt instruments were not publicly traded.

The debtor's disclosures regarding the fair value of its debt are sometimes relevant for transfer dates other than a quarter-end balance sheet date. For example, consider a debtor that made a transfer on August 15, 2009. Assume the debtor disclosed that the fair value of its debt was at or near par on June 30, 2009, and September 30, 2009. Also assume that (a) there were no credible allegations of insufficient disclosure, (b) there were no significant nondebt liabilities, and (c) the debtor's prospects were stable between June 30, 2009, and September 30, 2009. Based on the rationale used by the court in *Vlasic*, the fair values of debt were likely at or near par on the August 15, 2009, transfer date as well. By extension, the debtor was likely solvent on August 15, 2009.

Sometimes the facts are not as straightforward as the GM example presented here. For example, consider a debtor that made a transfer on June 15, 2008. Assume the debtor disclosed that its debt was valued at or near par on December 31, 2007, and at a substantial discount to par on December 31, 2008. The challenge is to identify the fair value of this debt as of June 15, 2008. This situation is one where the underlying work papers can be used to extrapolate the fair values at year-ends 2007 and 2008 to additional dates. The methodology used in the underlying work papers may provide a good template to address this challenge.

The analyses presented so far have been focused on a very high and artificial standard for a solvency determination—debt valued at or near par. This standard is based on the observation that stock prices of publicly traded companies always trade at some positive price; therefore, equity is always worth some amount greater than zero.⁸⁴ It must follow that any debtor whose debt instruments are collectively valued at par is by definition solvent under the balance sheet test because the fair value of debt plus fair value of equity is always greater than the face value of debt. There is a possible exception to this rule as certain claims can be both substantial and subordinated to the debtor's debt instruments. For example, this can be the case for certain contingent liabilities.

However, the standard for assessing solvency should not be artificially high. Many debtors that have debt instruments where the fair values are reported as being below par are nevertheless solvent.

For example, TOUSA's consolidated enterprise would have been solvent under the balance sheet test if the haircut (based on market values) on its debt was equal to its market capitalization of approximately \$170 million. As shown in Table 1, the haircut on TOUSA's debt was \$362 million, because its publicly traded debt traded at a weighted average of 66% of par. TOUSA would be solvent using the court's methodology (which assumed no control premium and may have excluded the value of unexercised employee stock options)⁸⁵ if the debt traded at a weighted average of 84% of par. See Table 8, which updates Table 1 (based on actual market prices) to reflect pro forma prices that would result in the debtor passing the balance sheet test by \$1. Table 8 is admittedly an oversimplification because it assumes each security's pro forma value would increase relative to its actual market values by the same amount. However, Table 8 is directionally relevant and shows that some debt instruments could trade near 60% of par yet the debtor would still pass the balance sheet test. The haircut on debt could be even greater if TOUSA's market capitalization was deemed to be biased low due to the exclusion of unexercised employee stock options and/or a justifiable control premium.

Spreads on credit default swaps may also be used to assess the debtor's solvency, capital adequacy, and ability to pay debts in these situations. Credit default swaps on

the debtor's debt instruments pay the holder when a negative credit event (such as a default) occurs. The market spreads on these instruments are often reported in the press as a predictor of the debtor's expected probability of default.

However, the debtor's expected probability of default cannot be directly observed from credit default swap spreads. The probability of default must be imputed from the spreads. This analysis requires the practitioner to make some assumptions that may potentially bias the outcome.

In order to minimize the number of assumptions required in the analysis, the practitioner should first identify the term structure of credit default swap spreads. The term structure refers to the shape of the curve derived from the observed spreads for given lengths of the contracts. An upward-sloping curve refers to an increase in the cost to insure against a default over time. For example, the spread may be 100 basis points per year for a one-year contract and 150 basis points per year for a five-year contract. An inverted curve refers to a decrease in the cost to insure against a default over time. For example, the spread may be 1,000 basis points per year for a one-year contract and 500 basis points per year for a five-year contract.

The identification of inverted curves matters because it indicates that the market believes that there is a heightened risk of a default in the near term and the firm will rebound if it weathers the near-term situation. The lower cost for longer-term contracts occurs due to conditional probability—the contract will only be in place in year five when the debtor does not default in years one through four. An inverted curve does not mean a debtor is automatically insolvent, as sometimes the high cost of protecting against default is due to specific short-term risks that face the company. For example, British Petroleum ("BP") had an inverted curve after the oil spill in the Gulf of Mexico. This inverted curve was presumably due to a heightened short-term risk of default that would substantially decrease if BP got past the short-term ramifications of the oil spill. However, the absence of a near-term operational issue may suggest that the inversion is due to heightened bankruptcy risk to such an extent as to indicate that the debtor is insolvent.

Practitioners can impute the probability of default that is suggested by spreads on credit default swaps. Although this is admittedly an oversimplification, the spread is influenced by two main assumptions: (a) the expected probability that the debtor will default over the term of the contract and (b) the expected "loss given default." Holding everything else constant, the expected probability of default is greater when the expected loss given default is

⁸⁴"If a buyer will pay a positive price for the firm's stock, then it is very likely to be solvent. ("Very likely" rather than "certain" because stock has an option value. Even after a firm is in bankruptcy, its stock will sell for a small price, reflecting the probability that the firm will be reorganized, and old equity investors be given some stake in the reorganized firm.)" *Paloian v. LaSalle Bank, N.A.*, 619 F.3d 688, 694 (7th Cir. 2010).

⁸⁵It is unclear from the public record whether unexercised employee stock options were taken into consideration.

smaller.⁸⁶ Unfortunately, the expected loss given default cannot be observed. Practitioners should compute the expected probability of default using a range of assumptions regarding the expected loss given default, due to the inability to directly observe the expected loss given default. Generally speaking, companies with a high concentration of intangible assets (e.g., service companies whose primary assets are its employees) are likely to have a greater expected loss given default than companies with a high concentration of tangible assets that can be sold after the debtor's bankruptcy filing and mitigate creditors' losses.

What should the practitioner do once he or she computes the debtor's implied probability of default? There is no bright line test that says a certain percentage is suggestive of solvency or insolvency. A comparison that can be made is to the cumulative default rate curves of rated corporate issuers published by the credit rating agencies. For example, Standard & Poor's publishes the average cumulative default rates for corporate issuers by credit rating from 1981 through the present. The average cumulative default rate over a five-year period (from 1981 through 2011) was approximately 21% for firms rated B and approximately 51% for firms rated CCC/C.⁸⁷ That is, on average, over this time period, 21% of B-rated firms and 51% of CCC/C-rated firms defaulted in any five-year period.

What should a practitioner do with this information? Many companies are able to raise new capital with a B credit rating. Thus, it is reasonable to conclude that the market generally accepts B-rated firms as being solvent at

the time of their debt issuances.⁸⁸ Conversely, most companies rated CCC/C originated their debt when they were rated B or higher. Thus, it is reasonable to conclude that the market does not generally accept CCC/C-rated firms as being solvent. Perhaps the "line in the sand" for the implied probability for default based on credit default swaps should be drawn somewhere between 20% (for B-rated firms) and 50% (for CCC/C-rated firms).

Another complicating factor is the fact that credit default swaps are priced as of the current date while credit ratings are often issued on a "through-the-cycle" basis. Thus, credit default swaps may suggest a higher probability of default than credit ratings on transfer dates leading into the downcycle. Conversely, credit default swaps may suggest a lower probability of default than credit ratings on transfer dates leading into the upcycle.

Analysis when only market prices for equity are available

A debtor can be insolvent notwithstanding a positive stock price. As previously discussed, GM's stock traded at over \$3 per share and its market capitalization was almost \$2 billion as of December 31, 2008, yet it was clearly insolvent at this time.⁸⁹

Stock prices (and market capitalization) are always positive because their downside is limited to zero, while their upside is unlimited. The shares in a debtor can be

⁸⁶Michael Simkovic and Benjamin S. Kaminetzky, "Leveraged Buyout Bankruptcies, the Problem of Hindsight Bias, and the Credit Default Swap Solution," *Columbia Business Law Review* 2011:118. The authors observe that "[t]he relationship between a credit spread and the perceived risk of default may be approximated by the following simplified equation: (perceived probability of default in year 1) = (credit spread)/(expected loss given default). This simple equation is useful for illustrative purposes. As this equation illustrates, an increase in the bond spread suggests either an increase in the perceived probability of default or an increase in the expected loss rate given default." The authors explain that this simplified equation is a "rough approximation" and provide "more precise" formulas in their paper. Another interpretation of this simple equation is that the perceived probability of default will be greater/lesser when the credit spreads are held constant and the expected loss given default is deemed to be lesser/greater. Some may argue that this simplified equation is too simple. Nevertheless, the logic holds for this point. For example, assume two issues have the same credit spreads for the same term. Also assume that issue A has a significantly greater expected loss given default than issue B. This simple equation predicts, and most (if not all) practitioners will agree, that issue B has a greater probability of default over the term than issue A. The focus of this paper is on corporate debtors, so other complicating factors (e.g., credit risk with insuring against the default of a sovereign nation, which has its own set of challenges, such as who can be forecasted to be creditworthy in the event of a U.S. sovereign default?) are not relevant for this discussion.

⁸⁷<http://www.standardandpoors.com/ratings/articles/en/us/?articleType=HTML&assetID=1245331026864>

⁸⁸Some practitioners may argue that an investor is only willing to invest in the debt instruments of certain B-rated issuers due to the greater promised interest rates relative to the promised interest rates offered by more creditworthy debtors. This argument should only go so far. Consider an investor that can choose between two investments. Investment one is offered by an investment-grade issuer and has a promised payment of LIBOR plus 200 basis points. Investment two is similar to investment one with the exception that it is offered by a "junk"-rated issuer and has a promised payment of LIBOR plus 500 basis points. Investment two offers a greater promised payment (300 extra basis points) but also entails a greater amount of risk. Anyone who considers participating in investment two understands that there is increased risk that this issue will default relative to investment one. Recall that approximately one-in-five B-rated issues default within five years. However, it is a stretch to argue that anyone who took a long position in investment two "knew" the debtor was insolvent. It makes no sense most of the time for an investor to contribute new money by extending credit to a *knowingly* insolvent debtor in exchange for a few percentage points of extra yield. For context, let us assume that issue two was expected to experience a 50% loss-given-default as of the transfer date. That is, in the event of a subsequent default, the creditor (i.e., the investor who took a long position in investment two) would expect to receive only 50 cents on every dollar of its claims on the debtor. It would take *well over a decade* for the extra spread to compensate for this expected loss-given-default in this situation. However, if the debtor was knowingly insolvent, it would not be expected to remain outside of bankruptcy, and make good on its promised interest payments, for anywhere near a decade.

⁸⁹Recall that the stock of bankrupt debtors continues to trade at a positive amount due to "option value," as there remains a small probability that the firm will be reorganized, and the old equity investors will be given a stake in the reorganized firm. Also recall that GM was insolvent based only on the market value of stock and debt instruments at this time. GM was even more insolvent at this time when the haircut on pensions and postretirement health obligations are considered.

viewed as a call option where the strike price is equal to the face value of debt. Stockholders will “exercise” this option by repaying or refinancing the debt when the fair value of the firm is greater than the face value of debt. Importantly, stockholders do not have to make a decision every day. They only have to make a decision when forced to upon debt maturity or default. Some practitioners refer to the positive stock prices for insolvent debtors as trading at “option value.”

There are no simple rules of thumb regarding what level of stock prices is suggestive of only option value. Some may instinctively believe that a stock price below a relatively low price per share (e.g., \$1 per share) is suggestive of trading at option value. However, stock prices are arbitrary because they are influenced by the number of shares outstanding. If a \$1 per share rule of thumb prevailed, a debtor whose stock price was below \$1 could easily “cure” its insolvency through a reverse stock split.⁹⁰

Contingent claims models (which are often used to value options) can be used to identify when a stock price is trading at option value. An option can be considered a contingent claim because it only has intrinsic value when certain contingencies are met. In the case of a solvency analysis, the contingent claims models can be set to identify the probability that the fair value of the firm will be greater than (or lesser than) the face value of the debt over a predetermined period of time.

A practical example of such a contingent claims model is Moody’s KMV.⁹¹ Moody’s KMV uses contingent claims models to determine the probability that the value of the firm will be less than the face value of the debt, which is conceptually similar to the expected default rates observed by the ratings agencies. However, there is one important difference: the expected default rates published by Moody’s KMV are based on *forward*-looking information, while the observed default rates published by the rating agencies are based on *backward*-looking information.

Expected default rates published by Moody’s KMV have been referenced by many practitioners. Perhaps one relevant example is the apparent use of these data by the

Federal Reserve to assess the health of the homebuilding industry during 2006.⁹²

As a practical matter, contingent claims models (as is the case for all models) are only as good as their underlying assumptions. The assumptions of the model are particularly relevant when assessing a debtor’s solvency because these models require the value of the firm as one input in order to compute the probability of default. Therefore, the practitioner needs to value the debtor’s debt securities (in addition to observing the market value of equity) to execute this analysis. Thus, such an analysis cannot be performed based solely on the market prices for a company’s stock prices.⁹³ However, the analysis will arguably be more grounded in contemporaneous information if it uses contemporaneous assessments (e.g., as is the case for Moody’s KMV analyses) as opposed to an *ex post* analysis performed by a practitioner in litigation.

Disputes over Disclosure

Solvency cases will often evolve into disputes over what was disclosed to the market when contemporaneous market prices of the debtor’s stock and/or debt securities indicate the debtor was solvent as of the transfer date. The plaintiff will often argue that material inside information was withheld from the investing public. The defendant will often argue that the appropriate information was disclosed. The winner of this battle will often win the war.

Some disputes can be found in the defendant’s favor by establishing that the information was either (a) actually disclosed or (b) withheld from the investment public but nevertheless immaterial to the debtor’s valuation. The court recently arrived at this determination in *Idearc*.⁹⁴ The court found the material inside information that was allegedly not disclosed was in fact either disclosed or immaterial.

⁹²One observation during the October 24–25, 2006, meeting was “Whether you look at the KMV data on expected-default frequencies for the five major home builders or at the Dow Jones home construction index and the stock prices for the top five home builders, none of them seems to be indicating a major problem. Now, the expected-default frequency, which again is driven from stock prices, may certainly be above the rest of U.S. industry, but by no means is it even at any kind of historically medium position, let alone high position...” The transcript was retrieved from: <http://www.federalreserve.gov/monetarypolicy/fomchistorical2006.htm>.

⁹³This is the case because the analysis requires the fair value of the debtor’s debt instruments. As previously discussed, the fair value of the debtor’s debt instruments must be less than their face value in order for the debtor to be insolvent.

⁹⁴“The Court will thus review the voluminous record the Trustee compiled, in order to determine whether material information was withheld from the market or material misrepresentations were made to the market. For ease of presentation, these items are divided into two separate categories: (1) information the Trustee alleges was withheld from the market, but that the court has found was actually disclosed; and (2) information that was apparently withheld from the market, which the Trustee argues was material, but that the court finds is immaterial to *Idearc*’s value.” *Idearc*, 2013 WL 230329, *8.

⁹⁰It is not uncommon for companies to use reverse stock splits to increase their price per share. For example, some companies target certain prices per share in order to not violate minimum share price requirements by stock exchanges.

⁹¹Moody’s acquired KMV (a company founded by Kealhofer, McQuown and Vasicek) in 2002. KMV’s “flagship solution” was its Expected Default Frequency (EDF) credit measure. Moody’s KMV subsequently developed other products, such as LossCalc™, “which became the first commercially available predictive model of Loss Given Default (LGD).” Retrieved from <http://www.moodyanalytics.com/about-us/history/kmv-history.aspx>.

Idearc is a noteworthy case in part because it shows the needle threading that a plaintiff must accomplish if it wants to prove a “fraud on the market” argument. The plaintiff needs to prove that material negative facts were withheld from the market while *at the same time* acknowledge that these material negative facts were known (or knowable) by the debtor’s management team and/or advisors. To put it bluntly, the plaintiff needs to allege that there was actual intent to commit some level of fraud. However, it is often difficult for plaintiffs to prove actual fraudulent intent, which is why most fraudulent conveyance matters focus on solvency analyses.⁹⁵ There are not many scenarios that can be hypothesized where a plaintiff that fails to prove there was actual intent to commit fraud can nevertheless still prevail in proving that there was a “fraud on the market” to such an extent that it would render the debtor insolvent.

Absent proof of actual fraudulent intent, the material negative information that was allegedly withheld is often subjective, as the plaintiff essentially argues that relatively bad potential outcomes should be emphasized while relatively good potential outcomes should be de-emphasized. This selective use of contemporaneous information is often a form of hindsight bias influenced by the debtor’s subsequent bankruptcy filing.⁹⁶ The relatively good and relatively bad potential outcomes were often known by contemporaneous market participants.⁹⁷ Thus, there is no “fraud on the market” if the market ultimately had the relevant information.

There may be some matters where there was no actual intent to commit fraud, but certain material negative information may have nevertheless been withheld from the market. The court must assess the effect on contemporaneous actions had this information been disclosed. *Vlasic* may be such an example. The court in *Vlasic* concluded that there was material inside information withheld and provided a potential road map for assessing the strength of the parties’ arguments in these disputes.⁹⁸

⁹⁵Recall that solvency analyses are used in the court’s assessment of constructive fraud.

⁹⁶Hindsight bias will be discussed in the third paper of this series.

⁹⁷For example, see the Court’s discussion in *Idearc*. Plaintiff “argued that Verizon promoted Idearc to the market as a company with significant growth potential, when Verizon knew that Idearc was actually a dying business that would only continue to decline.” The defendant disagreed with this characterization. The court also observed that “the only widely disseminated public information available to equity and public-side debt investors showed actual, historical revenue declines (from Verizon’s public SEC filings) and projected future revenue declines (published by third party analysts).” *Idearc*, 2013 WL 230329, *10 and *13.

⁹⁸A credible argument could also be made that no analysis was required in *Vlasic*. The debtor was comfortably solvent based on contemporaneous market values and other indicators. The plaintiff did not prove that there was actual intent to defraud creditors. It is difficult to hypothesize a scenario where the material negative inside information could (a) be large enough to wipe out over \$1 billion in business value yet (b) somehow not be large enough to merit a finding that there was an actual intent to defraud creditors.

The court in *Vlasic* found that the debtor remained comfortably solvent after the subsequent disclosure of material negative information. Importantly, the court also found that the debtor’s prospects did not improve between the transfer date and the subsequent disclosure of this information. These findings allowed the court to comfortably conclude that the debtor was solvent as of the transfer date. A solvency determination as of the subsequent date by definition results in a solvency determination as of the transfer date through “retrojection.” Retrojection in a legal context refers to a backwards projection.⁹⁹ In *Vlasic*, the court used the debtor’s solvency after the transfer date to comfortably project backwards that the debtor was solvent as of the transfer date when the debtor was in the same or better financial condition.¹⁰⁰

The court in *Vlasic* also took advantage of the binary nature of the solvency test: a debtor is either solvent or insolvent. The court did not have to worry about whether the debtor was worth \$20, \$15, or \$10 per share as of the

⁹⁹Hindsight is a controversial topic that is discussed in the third paper of this series. A strong argument could be made that hindsight is irrelevant (because it was *by definition* not known by contemporaneous actors), yet it is nevertheless frequently used to some extent in solvency litigation. This discussion may appear internally inconsistent because we are simultaneously (a) dismissing “fraud on the market” arguments influenced by hindsight bias and (b) using information learned in hindsight to project backwards a solvency determination. This essentially boils down to the classification of “bad” and “good” hindsight. Preference lawsuits may help provide some context. The look-back period for preference lawsuits is only *ninety days* for transfers to outsiders. This short time period is presumably the cause for the rebuttable presumption of insolvency because a debtor (a) is often insolvent when it files for bankruptcy and (b) often does not become insolvent overnight. Thus, a debtor that files for bankruptcy on Friday was often insolvent on Monday too. Similarly, there is a rebuttable presumption that a debtor who files for bankruptcy in March was insolvent in January. Now compare preference lawsuits with fraudulent conveyance lawsuits, which do not have a rebuttable presumption of insolvency. The look-back period for fraudulent conveyance lawsuits is often *several years*. A lot can happen over such a long period in time. For example, the transfer date in *Idearc* was in 2006, and the debtor filed for bankruptcy in 2009. The financial crisis (and its adverse effect on debtors) occurred during the intervening period. *Vlasic* is perhaps a more interesting example because the debtor’s bankruptcy filing was not influenced by a financial crisis or 9/11-type event. Some may argue that its subsequent bankruptcy filing was therefore foreseeable on the transfer date. An analysis of the market’s reaction when the material negative inside information was disclosed is a *limited* use of hindsight that addresses a pertinent question: What would have happened if this information was disclosed on the transfer date? In this instance, it shows that the debtor’s subsequent bankruptcy filing was not foreseeable on the transfer date. Thus, the retrojection principle that is used to support the rebuttable presumption of insolvency in preference lawsuits can be used to support a hard to rebut indicator of solvency in situations such as *Vlasic*.

¹⁰⁰Recall that the District Court found that VFI’s market capitalization remained substantial several months after the transfer date “when the truth of VFI’s situation had become clear.” *Vlasic*, 482 F.3d 624, 632. The Appellate Court observed “Nobody contends that VFI was worth more in September 1998 than at the end of March 1998. Consequently, if VFI’s September 1998 market capitalization reflected a value for [VFI] of at least \$500 million, despite no longer being affected by Campbell’s pre-spin operations, then [VFI] must have been worth more than \$500 million at the time of the spin.” *Vlasic*, 482 F.3d 624, 632.

transfer date. Therefore, the court did not have to identify a more precise “but for” value for the debtor’s business as of the transfer date that incorporated the subsequent disclosure of relevant information.

What would happen if the fact patterns in *Vlasic* were different? Assume the debtor’s prospects improved between the transfer date and the subsequent disclosure of the relevant information. For example, consider a situation in which the outlook for the debtor’s business improves due to debtor-specific, industry-specific, or overall market reasons after the transfer date. How would the court react in this situation? The court in *Vlasic* did not provide a road map for this scenario. It is possible that the debtor in this hypothetical situation grew into solvency after the transfer date as the improvement in its prospects more than offset the perceived decline in value due to the post-transfer-date disclosure. This debtor may have been insolvent as of the transfer date if the information had been disclosed at the time.

How does a practitioner evaluate the effect of post-transfer-date disclosure in this situation? Some practitioners may advocate for the use of an “event study” if the debtor’s stock was publicly traded. Event studies are often used in shareholder litigations to identify the effect of a disclosure on a company’s stock price. For example, assume a company’s stock price declined by 10% after the release of negative information that was not previously disclosed. The event study may establish that most (if not all) of this decline was attributable to the disclosure of this specific negative information. If the event study methodology was deemed to be applicable, the practitioner may reduce the debtor’s market capitalization as of the transfer date by the approximate 10% decline that was observed from the subsequent disclosure.

There are several issues that must be addressed when using event studies in a solvency context. The first issue is conceptual. Analyses for event studies require the market for the debtor’s securities to be semistrong efficient (i.e., reflect all publicly disclosed information) when the post-transfer-date disclosure was made. This is required in order for the practitioner to determine that the post-transfer-date stock prices are reliable indicators of the debtor’s value when this information was disclosed. It is likely in this situation that the markets for the debtor’s securities were semistrong efficient on the transfer date as well.¹⁰¹

¹⁰¹The debtor’s stock often trades on the same exchange on the transfer date and beyond. There is often ample discussion in the public domain regarding the type of transaction that subsequently becomes subject to a fraudulent conveyance lawsuit. Thus, if the market was semistrong efficient after the transfer date, it was likely semistrong efficient on the transfer date as well.

This creates a dilemma for any practitioner that tries to set aside the debtor’s contemporaneous stock and debt prices. A semistrong efficient market reflects all public information, which includes information that was disclosed by the debtor but not necessarily spelled out in bold letters. The market in this situation also reflects other information in the public domain, such as contemporaneous views on the outlook for the debtor’s industry or the economy as a whole. In order to meet the burden of proof obligation to set aside the debtor’s contemporaneous stock and debt prices, the practitioner should identify *specific* and *objective* material inside information that was not disclosed by the debtor or within the mosaic of information available to contemporaneous market participants.

Second, the primary factual issue that needs to be addressed is whether information was not disclosed. An event study is designed to test the statistical significance of the change in a company’s stock price relative to appropriate indices. An event study can effectively establish that a known event (i.e., the decline in the company’s stock price) was attributable to a specific event (i.e., the disclosure of certain information). However, an event study is not designed to effectively establish that an event learned in hindsight (i.e., the driver of the subsequent decline in the company’s stock price) was not disclosed or should have been disclosed as of an earlier date.¹⁰² Sometimes the event that was learned by the market in hindsight was clearly known as of the earlier date (e.g., certain hard facts). In other instances, the event that was learned by the market in hindsight is subjective (e.g., the likelihood of a credit rating downgrade), that is, based on a number of variables. It is substantially more difficult to establish that there was a lack of disclosure regarding subjective information.

It is important to recognize that not all statistically significant negative events that occurred after the transfer

¹⁰²This shortcoming is shared with many other statistical-based analyses. For example, an analysis of the correlation between dependent and independent variables can prove that a statistically significant correlation exists, but it cannot prove causality, because some correlations are spurious. One textbook explains in a section titled “A Word of Caution” that “[i]f there is a strong relationship (say, .91) between two variables, we are tempted to assume that an increase or decrease in one variable *causes* a change in the other variable. For example, it can be shown that the consumption of Georgia peanuts and the consumption of aspirin have moved together. However, this does not indicate that an increase in the consumption of peanuts *caused* the consumption of aspirin to increase. Likewise, the incomes of professors and the number of inmates in mental institutions have increased proportionately. Further, as the population of donkeys has decreased, there has been an increase in the number of doctoral degrees granted. Relationships such as these are called **spurious correlations**. What we can conclude when we find two variables with a strong correlation is that there is a relationship between the two variables, not that a change in one causes a change in the other (emphasis in original).” Robert D. Mason and Douglas A. Lind, *Statistical Techniques in Business & Economics*, 9th ed. (McGraw-Hill), 484 (1996).

date were likely due to the lack of disclosures as of the transfer date. I was involved in one matter (settled prior to trial) where the opposing expert identified all of the statistically significant events that resulted in a sizable decline in the debtor's stock price after the transfer date. This analysis may prove that the stock price declines on these particular dates were statistically significant. However, this analysis does not establish that the stock price was artificially inflated as of the transfer date due to the aforementioned inability to establish causality.

Third, the primary analytical issue is temporal. An event study in this context measures what actually happened at some point in the future. By definition, the market reaction occurred in an environment that was different from the environment as of the transfer date. Therefore, the effect of the event may be magnified or mitigated based on changes between the transfer date and subsequent disclosure date. For example, consider the disclosure of a relatively minor accounting misstatement for a debtor operating in the unregulated energy industry. Assume that the transfer date was well before Enron's collapse and that the disclosure was made after Enron's collapse. Also assume that the need for the disclosure was known or knowable on the transfer date. The effect on the debtor's stock price after the disclosure was made may be (substantially) greater than it would have been on the transfer date due to the market's heightened focus on accounting irregularities after Enron's collapse. These differences should be taken into account where possible.

Finally, a complicating factor occurs when there are multiple events. I have seen an opposing expert in one matter (settled before trial) combine multiple events and project backwards the purported effect of these disclosures as of the transfer date. Assuming for arguments' sake that the approach of combining multiple ex post events was reliable, should the individual events be combined through addition or multiplication (or some other method)? The question may appear innocuous, but the answer can mean the difference between solvency and insolvency. That opposing expert chose addition over multiplication, resulting in a larger reduction to the actual stock price and a lower valuation of the debtor as of the transfer date.¹⁰³

It is standard practice to combine discounts through multiplication, not addition. For example, Dr. Pratt explains

¹⁰³For example, the combination of a 10% and 15% decline would be 25% decline through addition (10% plus 15%) but 23.5% decline through multiplication. The 23.5% through multiplication is computed as follows. $100 \times (100\% - 10\%) \times (100\% - 15\%) = 76.5\%$; $100\% - 76.5\% = 23.5\%$. The variance between these two approaches increases as the (a) number of and/or (b) magnitude of events increases. For example, consider two events of 50% each. Adding them results in a 100% reduction (50% + 50%), while multiplying them results in a 75% reduction: $100 \times (100\% - 50\%) \times (100\% - 50\%) = 25\%$; $100\% - 25\% = 75\%$.

that the combination of a 30% minority interest discount and a 40% lack of marketability discount results in a 58% (not 70%) combined discount.¹⁰⁴ Thus, it is always an error to combine multiple discounts through addition.

Perhaps the best way to explain why the use of addition is always an error is to show its potential to result in nonsensical conclusions. For example, assume there are eleven events that each had a 10% reduction. The addition approach results in a 110% reduction, while the multiplication approach results in a 65% reduction to the debtor's stock price on the transfer date. A 110% reduction to any stock price results in a negative stock price. However, as previously discussed, stock prices for even bankrupt debtors remain positive. The opposing expert discussed above addressed this nonsensical conclusion (he had to because he identified a reduction of greater than 100% through his addition approach) by "conservatively" excluding a few events to ensure the "but for" stock price did not go below zero. Accumulating the effect of all the events by adding them together is not a credible methodology. The multiplication methodology, on the other hand, never allows the "but for" stock price to decline below zero and, therefore, is consistent with real-world behavior.

The discussion here focuses on disputes over disclosure when there is debate over whether or not a fraud occurred. In these matters, the plaintiff alleges there was a fraud on the market while the defendant argues either (a) there was no fraud on the market or (b) that the alleged withheld information was not material enough to result in the debtor's insolvency. These are not the only types of matters where fraud on the market arguments can be relevant.

Consider a debtor that commits a massive fraud and conceals this fraud from most of its stakeholders. Let us stipulate that this debtor is comfortably solvent when analyzing fraud-based data and is comfortably insolvent based on an accurate portrayal of most of its true financial condition. Is this debtor insolvent or solvent? The answer may not be straightforward.

For example, consider a lender that made a secured loan two months before the debtor's subsequent bankruptcy filing. Assume no outsiders were aware of the fraud when the loan was funded and that a whistleblower made the market aware of the fraud at some point after the loan was funded and before the debtor's bankruptcy

¹⁰⁴Shannon P. Pratt, *Business Valuation Discounts and Premiums* (New York: John Wiley & Sons, 2001), 6. Dr. Pratt explains that "[a] combined 30% minority interest discount and a 40% discount for lack of marketability equals a total of 58% discount from value of control shares. Minority and marketability discounts normally are multiplicative rather than additive. That is, they are taken in sequence (emphasis added)." The math is $\$10 \text{ control value} \times (1-30\%) = \$7 \text{ marketable minority value} \times (1-40\%) = \$4.20 \text{ per share value of nonmarketable minority shares}$. $\$10 - \$4.20 = \$5.80$. Thus, the discount is \$5.80 out of \$10.00, or 58%.

filing. Should this lender be forced to give up its valuable security in the debtor's assets because it received the security when the debtor was insolvent? The answer could depend on what the lender knew, or should have known, when it conducted its due diligence. This may be a fact-intensive exercise that is case specific. We will cover the actions of knowledgeable insiders and outsiders in Part II of this paper in the next issue.

Closing Thoughts

The market prices for a debtor's stock and debt instruments often provide compelling indicia for the debtor's solvency or insolvency as of the transfer date. Practitioners that arrive at conclusions which are directly at odds with this contemporaneous market data must be prepared to credibly explain why the market prices were not reliable. A practitioner (especially a testifier retained

after-the-fact by a client with an economic interest in the outcome of the litigation) should not simply assert that the market was "wrong."

Addendum

A decision in an interesting matter (Tronox) was released after the finalization of this article. Tronox will be addressed in the second article of this series.

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