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Bankruptcy Code Section 547(c)(5) and the Elusive Two-Point Net Improvement Test: New Math Meets Old Law

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I. INTRODUCTION

The year 1978 gave us the Kentucky Wildcats as NCAA basketball champions, Bucky Dent's dramatic home run to beat the Boston Red Sox in the playoffs, and the Bankruptcy Reform Act of 1978 (Act).[1] By passing the Act, Congress set out "to modernize the bankruptcy law by codifying a new title 11 that will embody the substantive law of bankruptcy . . . ."[2] As part of the overhaul, the preference[3] section was revised.[4]

This comment will examine one small portion of the preference section: the two-point net improvement test as established by section 547(c)(5). This comment will first review the background, contents, and policies surrounding section 547(c)(5). Next, it will examine the two-point net improvement test and how commentators and the courts have suggested that it be applied. While much of the writing and caseload concerning section 547(c)(5) has evolved around the valuation question,[5] this comment will enter an essentially unexplored universe of what should be the proper mathematical manipulation of the section 547(c)(5) figures in light of the policies and justifications set out for enacting the section.

II. BACKGROUND, CONTENTS, AND POLICIES OF SECTION 547(c)(5)

A. *Background*

Preference law developed as a tool of bankruptcy law. Its

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1. Bankruptcy Reform Act of 1978, Pub. L. No. 95-598, 92 Stat. 2549 (codified at 11 U.S.C. §§ 101-151326 and scattered sections of 28 U.S.C. (1982)).

2. S. REP. No. 989, 95th Cong., 2d Sess. § 1, *reprinted in* 1978 U.S. CODE CONG. & ADMIN. NEWS 5787, 5787 [hereinafter SENATE REPORT].

3. Preference in bankruptcy law "imports the relation of existing creditors having equal equities at the time of the transfer, whereby the rights of one are advanced over those of another." Adams v. City Bank & Trust Co., 115 F.2d 453, 454 (5th Cir. 1940).

4. The current law governing preferences is located at 11 U.S.C. § 547 (1982 & Supp. II 1984).

5. *See, e.g., In re* Ebbler Furniture and Appliances, Inc., 804 F.2d 87 (7th Cir. 1986).

purpose was to ensure a ratable distribution of the debtor's assets to his creditors.[6] The concept is basic: the debtor, facing impending bankruptcy, is restricted in how he may distribute his assets just prior to the filing of the bankruptcy petition.[7] From this idea, it can be extracted that "preference law implies that the debtor and creditor have a private duty to save the bankruptcy process from becoming moot before it has a chance to start."[8]

However, the secured creditor concept came into conflict with the ideals of preference law. Secured creditors argued that payments or transfers to them were not preferences, but rather were transfers made to satisfy indefeasible debts outside the realm and scope of bankruptcy law. Of particular concern were floating liens in after-acquired property.[9] The proper balance between preference law and the secured creditor eluded legislators for several decades.[10] Finally, the commission charged with assisting Congress in constructing the 1978 Reform Act developed section 547.

B. Contents

Section 547 enumerates the elements necessary to prove a voidable preference[11] in subsection (b) and allows for some exceptions to subsection (b) in subsection (c). For purposes of this comment, only the exception listed in subsection (c)(5) will be examined.[12] The subsection (c)(5) exception allows transfers to

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6. For an exhaustive background article on preference law, see Weisberg, *Commercial Morality, the Merchant Character, and the History of Voidable Preference*, 39 STAN. L. REV. 3 (1986).

7. Once the petition is filed, an automatic stay prohibits, with certain exceptions, further distribution. 11 U.S.C. § 362 (1982).

8. Weisberg, *supra* note 6, at 4.

9. The Uniform Commercial Code allows for the use of after-acquired collateral as security. *See* U.C.C. § 9-204 (1977).

10. For a discussion of several attempts to resolve the conflicts, see Weisberg, *supra* note 6, at 55-116.

11. A voidable preference occurs in bankruptcy law when there has been a transfer of the debtor's property, and that transfer meets the requirements of § 547(b). These requirements are essentially that the transfer be (1) to a creditor, (2) for an antecedent debt, (3) while the debtor was insolvent, (4) within ninety days of the filing of the petition, and (5) of such an amount that would allow the creditor to receive more than he would receive under chapter 7. 11 U.S.C. § 547(b) (1982 & Supp. II 1984).

12. For a discussion of the elements of a voidable preference and the other subsection (c) exceptions, see Orr & Klee, *Secured Creditors Under the New Bankruptcy Code*, 11 U.C.C. L.J. 312, 332-35 (1978-79); Young, *Preferences Under the Bankruptcy Reform Act of 1978*, 54 AM. BANKR. L.J. 221 (1980).

holders of certain perfected security interests to be exempt from the avoidance powers of the trustee in bankruptcy. Section 547(c)(5) states:

> (c) The trustee may not avoid under this section a transfer—
>
> . . . .
>
> (5) that creates a perfected security interest in inventory or a receivable or the proceeds of either, except to the extent that the aggregate of all such transfers to the transferee caused a reduction, as of the date of the filing of the petition and to the prejudice of other creditors holding unsecured claims, of any amount by which the debt secured by such security interest exceeded the value of all security interests for such debt on the later of—
>
> (A)(i) with respect to a transfer to which subsection (b)(4)(A) of this section applies, 90 days before the date of the filing of the petition; or
>
> (ii) with respect to a transfer to which subsection (b)(4)(B) of this section applies, one year before the date of the filing of the petition;[13] or
>
> (B) the date on which new value was first given under the security agreement[14] creating such interest[.][15]

This section is expressly limited in its application to perfected security interests in inventory and receivables and their proceeds. It also establishes a two-point net improvement test for determining whether there has been a voidable preference. This two-point test is the focus of section III of this comment.[16]

C. *Policies*

A multitude of policies and justifications have been given for section 547(c)(5)—each has also been properly criticized and defended in the legal journals as well.[17] These policies can be

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13. The one-year time limit is applied to transfers which include an insider. 11 U.S.C. § 547(b)(4)(B). While this provision is not specifically referred to in this comment, the analysis of section III of this comment is still applicable. Only the date on which valuation must be determined will differ.

14. This refers to security agreements entered into within 90 days of the filing of the bankruptcy petition. While this provision is not specifically referred to in this comment, the analysis of section III of this comment is still applicable. Only the date on which valuation must be determined will differ.

15. 11 U.S.C. § 547(c)(5) (Supp. II 1984) (footnotes added).

16. For a discussion of this test, see *infra* notes 19-23 and accompanying text.

17. For an interesting debate concerning preference law and its interplay with secured creditors, see Professors Eisenberg's and Harris' series of articles: Eisenberg, *Bankruptcy Law in Perspective*, 28 UCLA L. REV. 953, 963-71 (1981) [hereinafter Eisen-

broken into two essential goals: (1) ensuring that an equitable portion of the debtor's assets are available to at least partially satisfy the claims of general creditors, and (2) establishing a simple, bright-line test that can be easily applied by courts.[18]

The first objective of providing protection for the unsecured creditors has been endorsed by the courts. For example, Judge Easterbrook wrote: "The principal function of § 547(c)(5) is to reduce the need of unsecured creditors to protect themselves against the last-minute moves of secured creditors."[19] By limiting the protection of section 547(c)(5) to only those transfers to a secured creditor which improve his position during the ninety-day period before bankruptcy, it was thought that an equitable balance had been struck between the secured creditors' right to guaranteed payment and the general creditors' need to have some assets left upon which to rely for satisfaction of their claims. Congress itself thought that such a balance had been struck.

In discussing the preference provisions of the reform law, the House Report on the Bankruptcy Reform Act concluded:

> The purpose of the preference section is two-fold. First, by permitting the trustee to avoid prebankruptcy transfers that occur within a short period before bankruptcy, creditors are discouraged from racing to the courthouse to dismember the debtor during his slide into bankruptcy. The protection thus afforded the debtor often enables him to work his way out of a difficult financial situation through cooperation with all of his creditors. Second, and more important, the preference provisions facilitate the prime bankruptcy policy of equality of distribution among creditors of the debtor. Any creditor that received a greater payment than others of his class is required to disgorge so that all may share equally. The operation of the preference section to deter "the race of diligence" of creditors to dismember the debtor before bankruptcy furthers the second goal of the preference section—that of equality of distribution.[20]

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berg I]; Harris, *A Reply to Theodore Eisenberg's* Bankruptcy Law in Perspective, 30 UCLA L. REV. 327, 333-38 (1982); Eisenberg, *Bankruptcy Law in Perspective: A Rejoinder*, 30 UCLA L. REV. 617, 626-34 (1983).

18. *See* Jackson, *Avoiding Powers in Bankruptcy*, 36 STAN. L. REV. 725, 774-75 (1984).

19. *In re* Ebbler Furniture and Appliances, Inc., 804 F.2d 87, 92 (7th Cir. 1986) (Easterbrook, J., concurring).

20. H. R. REP. No. 595, 95th Cong., 2d Sess., 177-78, *reprinted in* 1978 U.S. CODE CONG. & ADMIN. NEWS 5963, 6138.

Congress expressly thought that it was establishing a very basic test. In the legislative history, the report on section 547(c)(5) was succinct. It states:

> Paragraph (5) codifies the improvement in position test, and therefore overrules such cases as *Dubay* v. *Williams*, 417 F.2d 1277 (C.A. 9, 1966), and *Grain Merchants of Indiana, Inc.* v. *Union Bank and Savings Co.*, 408 F.2d 209 (C.A. 7, 1969).[21] A creditor with a security interest in a floating mass, such as inventory or accounts receivables, is subject to preference attack to the extent he improves his position during the 90-day period before bankruptcy. The test is a two-point test, and requires determination of the secured creditor's position 90 days before the petition and on the date of the petition. If new value was first given after 90 days before the case, the date on which it was first given substitutes for the 90-day point.[22]

While the language of the test appears to be straightforward, application of the test has not been as easy for the courts as hoped. Courts have struggled over the "whens" and "hows" of determining the value of the debtor's assets which is needed to determine the four figures required in order to apply the net improvement test.[23] This comment will not attempt to add to the writings of this area, rather it will toss its hat into a more obscure arena—one which examines what are the proper mathematical manipulations of the figures required by section 547(c)(5). Fair warning should be given to the reader concerning what is to follow. Therefore, the reader should be made aware of the following comment: "Although in the easy case section 547(c)(5) is capable of mechanical application, understandable even by those of us who have not been schooled in the new math, it can become almost a medieval instrument of torture when presented to students by a law professor with an active legal imagination."[24]

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21. For a discussion of these two cases and their rejection of a proposed two-point net improvement test, see Kaye, *Preferences Under the New Bankruptcy Code*, 54 AM. BANKR. L.J. 197, 207-11 (1980).

22. SENATE REPORT, *supra* note 2, at 5874 (footnote added).

23. For an examination of the various theories of valuation, see In re *Ebbler Furniture*, 804 F.2d at 88-90.

24. Duncan, *Preferential Transfers, the Floating Lien, and Section 547(c)(5) of the Bankruptcy Reform Act of 1978*, 36 ARK. L. REV. 1, 25 (1982). While the author of this comment is a "mere" third-year law student, one of the professors with a bent towards medieval torture suggested this topic and its premise and must therefore take responsibility for exposing the legal community to the following mathematical discussion. The author promises that nothing beyond multi-variable calculus will be required to under-

III. Law Meets Mathematics: Is It Absolute or Is It Ratios?

As any good statistician understands, numbers can be made to sing any song from opera to rock-n-roll. The same is true of numbers used by the legal profession. Section 547(c)(5) merely requires two processes. First, four numbers must be determined: (1) the value of the collateral ninety days before the filing of the petition for bankruptcy, (2) the value of the collateral on the date of the filing, (3) the amount of the loan outstanding on the ninetieth day before filing, and (4) the amount of the loan outstanding on the date of filing. Second, these figures are compared to ensure that no improvement in position has occurred. Section 547(c)(5) does not specify what mathematical manipulation of those numbers should occur to demonstrate that no net improvement has occurred.

Courts have generally been concerned with the values that must be calculated before a comparison can be made and have not dealt with the comparison problem in much detail. For example, the Fifth Circuit gave the following direction on remand to the lower court:

> The proper solution is to remand the case for a factual determination as to whether the Bank improved its position during the ninety-day preference period. Such a determination should yield at least four numbers: (1) the loan balance outstanding ninety days prior to bankruptcy; (2) the value of the accounts receivable on that day; (3) the loan balance outstanding on the day the bankruptcy petition was filed; and (4) the value of the accounts receivable on that day.[25]

Although the court discussed valuation concerns at length, it failed to state how the resulting figures should be used, leaving the lower court to determine for itself the proper method of comparison.

This comment will examine two possible mathematical processes—(1) absolutes using subtraction, and (2) ratios using division—which could be used to establish the existence of a

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stand the proposed "new math."

Others have also ventured into the realm of mathematics and law. *See* Kirksey, *A Simplified Approach To Preference Calculations—Section 547(c)(4) of The Bankruptcy Reform Act of 1978 And The "At Risk Rule"*, 61 Am. Bankr. L.J. 255 (1987).

25. *In Re* Missionary Baptist Foundation of America, Inc., 796 F.2d 752, 761 (5th Cir. 1986) (citations omitted).

voidable preference. This comment will also demonstrate that the use of ratios should be given serious consideration in light of one of the major goals of preference law and section 547(c)(5)—protecting unsecured creditors. However, the use of ratios to enhance protection of unsecured creditors might impede the second major goal of section 547—providing a simple test for the courts to apply.

A. Absolutes with Subtraction

Under the absolute method, courts would examine the amount by which the secured creditor is undersecured in terms of absolute dollars as of the date of filing and the ninetieth day before filing. For example, if the secured creditor is undersecured by $50,000 on the ninetieth day before filing of the petition, he is not permitted to be less than $50,000 undersecured as of the date of filing. If the undersecured portion has been reduced, the amount of the reduction is a voidable preference.[26]

Under the absolute method, the following steps are performed to determine whether there has been a voidable preference: (1) the value of the collateral on the ninetieth day before the filing of the bankruptcy petition is subtracted from the amount of the loan outstanding on that same day; (2) the value of the collateral on the day of filing of the petition is subtracted from the amount of the loan outstanding on that same day; and (3) the result in step (2) is subtracted from the result in step (1). If this result is a positive number, i.e. greater than zero, then a voidable preference under section 547(b) has occurred for that amount. The answer in step (3), if positive, will be the amount that section 547(c)(5) will not allow to be sheltered from the avoidance powers of the trustee in bankruptcy.

The Seventh Circuit seems to have adopted this approach. The court stated:

> The first step in applying section 547(c)(5) is to determine the amount of the loan outstanding 90 days prior to filing and the "value" of the collateral on that day. The difference between these figures is then computed. Next, the same determinations are made as of the date of filing the petition. A comparison is made, and, if there is a reduction during the 90 day period of the amount by which the initially existing debt ex-

26. One advantage of the net improvement test is that intermediate fluctuations between the ninety day mark and the filing date are irrelevant.

> ceeded the security, then a preference for section 547(c)(5) purposes exists.[27]

However, the court uses the term "comparison" which might imply that either a use of ratios or absolutes would be appropriate.

Some commentators have also adopted the absolute approach.[28] For each example given by these commentators, the final result is arrived at by a process essentially identical to that described above.

The apparent facial simplicity of section 547(c)(5) has been questioned. Before delving into several complex examples under section 547(c)(5), Professor Duncan noted that "[s]ection 547(c)(5)'s complexity is deceptive, and many courts and commentators have failed to discern its more abstruse features. The easy applications are almost childishly simple, and serve as bait to lure the unwary legal analyst into the trap set by its difficult applications."[29] Professor Duncan consistently uses an absolute approach for the mathematical computations throughout his article. This author would argue that perhaps Professor Duncan has also been lured into section 547(c)(5)'s trap by failing to consider a possible alternative to the absolute approach.

B. Ratios with Division

Under the ratio approach, courts consider the amount by which the secured creditor is undersecured in terms of percentages on the date of filing of the petition and on the ninetieth day before filing. For example, if the secured creditor is only 60% secured on the ninetieth day before filing, then he is not allowed to increase this percentage on the date of filing, regardless of whether the loan amount increased or decreased.

This method uses the same four figures determined above yet arrives at the final result—sometimes the same, sometimes different—from an alternative angle. The ratio approach requires that the following steps be performed to determine whether there has been a voidable preference: (1) the value of collateral on the ninetieth day before filing of the petition is divided by the amount of the outstanding loan on that same day and the result is multiplied by 100% ((collateral/loan) x 100%); (2) the value of the collateral on the date of the filing is divided

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27. In re *Ebbler Furniture*, 804 F.2d at 89-90.
28. *See, e.g.*, Duncan, *supra* note 24, at 22-24; Kaye, *supra* note 21, at 207.
29. Duncan, *supra* note 24, at 23 (footnote omitted).

by the amount of the outstanding loan on that same day and the result is multiplied by 100%; (3) the result in step (2) is then subtracted from the result in step (1), if it is a negative number there has been a voidable preferential transfer. The value of the preference is calculated as follows: (4) after converting the result in step (1) to decimal form by dividing by 100, the result in step (1) is multiplied by the amount of the loan outstanding on the date of the filing of the petition—this represents the maximum amount the secured creditor can claim under the security agreement as a perfected secured creditor (the secured creditor would be treated as an unsecured creditor as to the remainder of the outstanding loan balance); (5) the result in step (4) is subtracted from the value of the collateral on the date of filing of the petition. This figure represents the amount of the voidable preference.

This approach has not been expressly adopted by any court or commentator. However, it has been referred to in a backhanded way. In COLLIER ON BANKRUPTCY, the author in discussing section 547(c)(5), mentions valuation in terms of being "20% secured."[30] This would imply the use of some form of ratios. Examples of each of these methods will help demonstrate the similarities and differences in these two approaches.

C. Examples

The following series of examples will refer only to the numbers required for the calculations and not to the underlying transactions from which these numbers would be derived. Knowledge of the underlying transactions is not necessary to demonstrate the differences in the two methods nor to understand the impact of these differences.[31]

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30. 4 COLLIER ON BANKRUPTCY ¶ 547.41, at 547-134 (L. King ed. 1986).

31. For a discussion of the underlying transactions involved, see E. REILY, GUIDEBOOK TO SECURITY INTERESTS IN PERSONAL PROPERTY § 8.08 (2d ed. 1987).

Example 1:

Date	*Collateral*	*Loan*
90th	$50,000	$100,000
Filing	$75,000	$100,000

Results for each method:

Step Absolute

(1) $100,000 − $50,000 = $50,000	undersecured
(2) $100,000 − $75,000 = $25,000	undersecured
(3) $50,000 − $25,000 = $25,000	voidable preference

Step Ratios

(1) ($50,000 / $100,000) * 100% = 50%	secured
(2) ($75,000 / $100,000) * 100% = 75%	secured
(3) 50% − 75% = −25%	
(4) (50 / 100) * $100,000 = $50,000	maximum recovery
(5) $75,000 − $50,000 = $25,000	voidable preference

As this example demonstrates, when the amount of the outstanding loan remains constant and only the value of the collateral shifts, each method will result in the same answer.

Example 2:

Date	*Collateral*	*Loan*
90th	$50,000	$100,000
Filing	$60,000	$80,000

Because the value of the loan has decreased at the end of the ninety-day period, there has been a voidable transfer under section 547(b) which is outside of the section 547(c) exceptions. This has occurred because the partial payment of the loan is initially attributed to the unsecured portion of the loan: "The court assume[s], 'in the absence of proof to the contrary, that the payments were credited toward the unsecured portion of the debt, since this course of action would comport with standard business

practice.' "[32] The consequence of the voidable nature of the transfer is that the transaction must be undone. The creditors receiving such payment "must account for the payments they received during the 90 days preceding the bankruptcy filing, or they will ultimately receive a larger share of their *unsecured* claims than other unsecured creditors."[33]

The numbers for Example 2 must be modified to reflect the avoided transfer change.

Date	*Collateral*	*Loan*
90th	$50,000	$100,000
Filing	$60,000	$100,000

Results for each method:

Step Absolute	
(1) $100,000 − $50,000 = $50,000	undersecured
(2) $100,000 − $60,000 = $40,000	undersecured
(3) $50,000 − $40,000 = $10,000	voidable preference

Step Ratios	
(1) ($50,000 / $100,000) * 100% = 50%	secured
(2) ($60,000 / $100,000) * 100% = 60%	secured
(3) 50% − 60% = −10%	
(4) (50 / 100) * $100,000 = $50,000	maximum recovery
(5) $60,000 − $50,000 = $10,000	voidable preference

Example 2 essentially demonstrates the same principle as example 1. The only difference is that a preliminary examination must be made when the loan has been paid down as to whether the payment should be credited to the secured or unsecured portion of the loan. When the loan value decreases due to payments on the unsecured portion, these payments will be avoided. The consequence of this action will be to return the outstanding loan balance to the level it was at on the ninetieth day before filing,

32. Barash v. Public Finance Corp., 658 F.2d 504, 508 (7th Cir. 1981) (quoting *In Re* McCormick, 5 Bankr. 726, 729-30 (Bankr. N.D. Ohio 1980)).

33. *Id.* at 509 (emphasis in original). The Seventh Circuit further explained that despite this setback, the partially secured creditor "will still receive the full benefit of [his] collateral as to [his] secured claims." *Id.*

and each method of calculation will reach the same final result as to whether a voidable preference exists.

The absolute/ratio distinction is important when there has been an increase in the loan value.

Example 3:

Date	*Collateral*	*Loan*
90th	$30,000	$50,000
Filing	$50,000	$100,000

Results for each method:

Step Absolute

(1) $50,000 − $30,000 = $20,000	undersecured
(2) $100,000 − $50,000 = $50,000	undersecured
(3) $20,000 − $50,000 = $30,000	voidable preference

Step Ratios

(1) ($30,000 / $50,000) * 100% = 60%	secured
(2) ($50,000 / $100,000) * 100% = 50%	secured
(3) 60% − 50% = 10%	
(4) not applicable	
(5) since step (3) yielded a non-negative number, there has not been a preferential transfer.	

In this example, the value of the collateral increased at a percentage rate of the additional loan value (40% in this case) less than the secured percentage calculated in the ratio method step (1) (60%). Under these circumstances, both methods determined that there had not been a preferential transfer. However, there is an interesting mathematical quirk to note. Under the absolute method, the creditor is $30,000 in the hole, while if the ratio method calculations were continued it would show the creditor was only $10,000 in the hole.[34]

34. The results for step (4) and step (5) would be as follows:
(4) (60 / 100) * $100,000 = $60,000 maximum recovery
(5) $50,000 - $60,000 = -$10,000 no preference.

Example 4:

Date	*Collateral*	*Loan*
90th	$30,000	$50,000
Filing	$60,000	$100,000

Results for each method:

Step Absolute

(1) $50,000 − $30,000 = $20,000	undersecured
(2) $100,000 − $60,000 = $40,000	undersecured
(3) $20,000 − $40,000 = $20,000	no preference

Step Ratios

(1) ($30,000 / $50,000) * 100% = 60%	secured
(2) ($60,000 / $100,000) * 100% = 60%	secured
(3) 60% − 60% = 0%	
(4) not applicable	
(5) since step (3) yielded a non-negative number, there has not been a preferential transfer.	

Example 4 examines the case where the increase in collateral value is equivalent to the increase in the loan value multiplied by the percent secured that was calculated in step (1) of the ratio method. Both methods have determined that no preference has occurred, yet it should be noted that while under the ratio method the creditor broke even, under the absolute method the creditor was $20,000 in the hole.

Example 5:

Date	*Collateral*	*Loan*
90th	$30,000	$50,000
Filing	$80,000	$100,000

Results for each method:

Step Absolute

(1) $50,000 − $30,000 = $20,000	undersecured
(2) $100,000 − $80,000 = $20,000	undersecured
(3) $20,000 − $20,000 = $0	no preference

Step Ratios

(1) ($30,000 / $50,000) * 100% = 60%	secured
(2) ($80,000 / $100,000) * 100% = 80%	secured
(3) 60% − 80% = −20%	
(4) (60 / 100) * $100,000 = $60,000	maximum recovery
(5) $80,000 − $60,000 = $20,000	preference

Here, the ratio method has determined that a $20,000 preference transfer has occurred while the absolute method has found no preference. As the collateral value increases at a higher percentage rate of the loan value than that determined in step (1) of the ratio method, the ratio approach will pick up some part of the change in values as a preference and provide additional protection for the general creditors. It is in this small area—where percentage increases in the collateral value relative to the loan increase are greater than the percentage determined in step (1) of the ratio method—that there is a legally significant difference between the two calculation methods. This difference occurs because the absolute method allows the debtor to use 100% of the additional loan to increase the collateral value while the ratio method only allows the debtor to use a portion of the additional loan to increase the collateral value due to the creditor's partially secured status.

The most obvious lesson to be learned from these mathematical gymnastics is that the same four figures can be manipulated and "compared" through the use of differing mathematical techniques to yield different results while still remaining true to

the literal language of section 547(c)(5), which allows an avoidance to the extent "that the aggregate of all such transfers to the transferee caused a *reduction* . . . of any *amount* by which the debt secured by such security interest exceeded the value of all security interests for such debt . . . ."[35] The key words of "reduction" and "amount" allow for either mathematical interpretation. However, the importance of the above figures is that depending upon which group of creditors, secured or general, one wishes to protect with section 547(c)(5), the use of ratios over absolutes may or may not be the best choice.

D. Which to Choose?

The analysis in determining which method to choose should be based on the main goals of section 547(c)(5). Both the ratio and the absolute method meet the major goal of providing a bright-line test for the courts to apply. Each method provides a simple mathematic formula for determining whether there is a voidable preference, and either method should be relatively easy for the courts to apply.

The analysis under the other major goal, that of ensuring an equitable portion of the debtor's assets are available to satisfy the claims of unsecured creditors, is not so simple. If the main goal of section 547(c)(5) is to provide protection for the unsecured creditors, as some have argued,[36] the use of ratios will provide additional assets for the unsecured creditors when the amount of the loan has increased at the end of the ninety-day period and the value of the collateral has increased at a percentage rate of the increased loan value greater than the initially determined secured percentage (Example 5). However, if the secured creditor is considered to be the party worthy of additional protection,[37] then the absolute method should be used in making

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35. 11 U.S.C. § 547(c)(5) (Supp. II 1984) (emphasis added).

36. Professor Gilmore has stated that secured creditors received excessive protection under article 9 of the Uniform Commercial Code and that "[j]ust as, in nineteenth-century melodramas, the United States Calvary always arrived in the nick of time, so the new Federal Bankruptcy Code has come galloping to the rescue." Gilmore, *The Good Faith Purchase Idea and the Uniform Commercial Code: Confessions of a Repentant Draftsman*, 15 GA. L. REV. 605, 627 (1981) (footnote omitted). Professor Gilmore argues that section 547 gave the drafters of article 9 "a second chance to clean up the mistakes that they made the first time around." *Id.* at 628.

37. Professor Eisenberg argues in favor of the secured creditor. He claims that the "too much is too much" rationale is "an incomplete justification for the new act's subordination of inventory and receivables secured lending." Eisenberg I, *supra* note 17, at

section 547(c)(5) calculations. Which party, the secured or unsecured creditor, that is to receive the additional protection is left up to the courts to decide.

One approach that would maximize protection of the secured or unsecured creditor is to adopt a hybrid approach. This approach would require a case-by-case analysis. Initially, one objective would need to be chosen—either protection of the secured creditor or unsecured creditor. Once this had been determined, the method which best protected the chosen interest would be used, i.e. the greater of/lesser of the two results would be selected. One major disadvantage of a hybrid approach is that it would hamper attainment of section 547(c)(5)'s second major goal—supplying a simple, bright-line test for courts to use. However, once the values are determined for the initial four numbers, relatively simple calculations are required—ones which counsel for the "winning" side would be more than willing to employ a mathematical expert to crunch out.

IV. Conclusion

As is often the case with law review comments, more questions than answers have been raised. The objective of this comment was to expose the legal community to another possible method of calculations under section 547(c)(5)—one using ratios instead of simple subtraction—to determine the result mandated by section 547(c)(5). Both the absolute and the ratio methods meet the requirements of the statutory language with the ratio method providing additional protection to secured creditors in certain circumstances. This does not mean that one must be discarded in favor of the other. On the contrary, a hybrid of the two methods could be used to further protection for general or secured creditors, although this might impede judicial efficiency.

Whichever method is used, the most important thing to be learned is that legislators need to be more explicit when codi-

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964. He further argues that since "[r]ightly or wrongly, bankruptcy law generally accepts secured lending as a credit vehicle and honors it in bankruptcy" and given the "unsecured lenders' freedom to choose borrowers . . . [i]f it is 'equitable' to honor secured credit transactions in all other contexts, notions of fairness cannot require any particular treatment of inventory and receivables." *Id.* at 965 (footnote omitted).

fying mathematical concepts. Precision of language is essential to avoid potential confusion.

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