

2013

A Model for Measuring the Expected Value of Assuming Tax-Partnership Liability

Bradley T. Borden

Joseph Binder

Ethan Blinder

Louis Incatasciato

Follow this and additional works at: <https://brooklynworks.brooklaw.edu/bjcfcl>

Recommended Citation

Bradley T. Borden, Joseph Binder, Ethan Blinder & Louis Incatasciato, *A Model for Measuring the Expected Value of Assuming Tax-Partnership Liability*, 7 Brook. J. Corp. Fin. & Com. L. (2013).

Available at: <https://brooklynworks.brooklaw.edu/bjcfcl/vol7/iss2/2>

This Article is brought to you for free and open access by the Law Journals at BrooklynWorks. It has been accepted for inclusion in Brooklyn Journal of Corporate, Financial & Commercial Law by an authorized editor of BrooklynWorks.

A MODEL FOR MEASURING THE EXPECTED VALUE OF ASSUMING TAX-PARTNERSHIP LIABILITY

*Bradley T. Borden, Joseph Binder, Ethan Blinder & Louis Incatasciato**

TABLE OF CONTENTS

INTRODUCTION	361
I. OVERVIEW OF RELEVANT PARTNERSHIP TAX RULES	364
A. ALLOCATIONS AND CAPITAL ACCOUNTS.....	365
B. BASIS AND THE BASIS LOSS LIMITATION	369
II. INCREASING BASIS TO MITIGATE THE BASIS LOSS LIMITATION.....	371
A. INCREASING BASIS WITH INCOME ALLOCATION.....	371
B. INCREASING BASIS WITH ACTUAL CONTRIBUTIONS	373
C. INCREASING BASIS BY ASSUMING A LARGE SHARE OF TAX-PARTNERSHIP LIABILITIES	374
1. Partners' Shares of Tax-Partnership Recourse Liabilities	376
a. Effect of State Law.....	379
b. Effect of the Tax-Partnership Agreement.....	383
c. Effect of Other Arrangements and Laws.....	385
2. Partners' Shares of Tax-Partnership Nonrecourse Liabilities	389
III. EXPECTED COST OF TAX-PARTNERSHIP DEFAULT	395
A. PROBABILITY AND PREDICTING FUTURE EVENTS.....	398
1. Weighted Average Value of a Random Variable.....	405
2. Multiplication Rule	407
3. Conditional Probability	408
B. COMPUTING THE PROBABILITY OF TAX-PARTNERSHIP DEFAULT.....	412
C. MODEL FOR EXPECTED VALUE OF LIABILITY ASSUMPTION.....	417
CONCLUSION	422

INTRODUCTION

Weighing costs and benefits of various alternatives is a common part of decision making in business and finance. Generally, any decision requires some anticipation of future events to fully appreciate the cost or benefit of a particular course of action. Anticipating the future event requires a decision maker to predict the likelihood of the event occurring. If alternatives occur

* Brad is a professor at, and Ethan (2013), Joe (2013), and Louis (2012) are graduates of, Brooklyn Law School. To review a version of this Article with all image-based equations and tables, please download a copy at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2224009.

at different times, a comparison of the costs and benefits of the alternatives must account for the time difference that separates each event. Time-value-of-money tools help with such accounting. Thus, comparative cost-benefit analyses may require the decision maker to (1) predict the likelihood of one or more events occurring in the future, (2) estimate the time at which the events will occur, (3) attach a monetary value to the events, and (4) apply time-value-of-money tools to adjust the cost or benefit as appropriate to allow for cost-benefit comparisons as of a single point in time. Such decision making arises in numerous contexts. This Article presents a scenario that requires decision makers to perform all of those tasks with respect to the increasingly popular forms of business entities that are subject to partnership taxation.

Partnership tax law applies to a very significant percentage of limited liability companies, limited partnerships, limited liability partnerships, and general partnerships.¹ This Article refers generally to all such entities as tax partnerships and refers to the persons who hold interests in such entities as members of tax partnerships.² Tax partnerships are becoming an ever-more-popular preference for the financial, business, and real estate industries.³ The tax rules that govern tax partnerships provide unique tax-planning opportunities. Although decisions that members of such entities make can provide one or more members with desirable tax results, undesirable economic consequences may accompany the desirable tax result. Desirable tax results may include a larger share of a tax partnership's tax deductions or a smaller share of its taxable income. Undesirable economic results may include greater exposure to the tax partnership's liabilities or a smaller

1. These types of entities qualify for partnership taxation under the so-called check-the-box regulations. See Treas. Reg. §§ 301.7701-1 to -3 (2011). See also Bradley T. Borden, *Three Cheers for Passthrough Taxation*, 131 TAX NOTES 1353, 1358 tbl.2 (2011) (presenting the number of tax partnerships and the number of partners that appear in Internal Revenue Service (IRS) statistics of income). In limited situations, property and business owners may prefer corporate tax treatment and elect to have one of these entities be treated as a corporation for tax purposes. See 1 BRADLEY T. BORDEN & ROBERT J. RHEE, LIMITED LIABILITY ENTITIES: A STATE BY STATE GUIDE TO LLCs, LPS AND LLPS ¶ 16.2 (2012) (describing the use of S corporations for employment tax planning purposes).

2. The Authors recognize that members of state-law partnerships are partners and generally are not referred to as members. Nonetheless, partners of state-law partnerships fall within the broader definition of members of tax partnerships, so the Authors use the broader term to help draw attention to the fact that tax partnerships include limited liability entities.

3. The number of corporate tax returns filed each year appears to be stagnant or decreasing, while the number of partnership tax returns filed each year is increasing. See DEP'T OF THE TREASURY & INTERNAL REVENUE SERV., STATISTICS OF INCOME: 2008 CORPORATION INCOME TAX RETURNS 1 (2011) (noting that corporate tax returns filed for 2008 decreased by 0.3 percent from the previous tax year); INTERNAL REVENUE SERV., STATISTICS OF INCOME: PARTNERSHIP RETURNS, 2008 (2010) (noting that from 2007 to 2008, the number of partnerships increased by 1.6 percent); Bradley T. Borden, *The Allure and Illusion of Partners' Interests in a Partnership*, 79 U. CIN. L. REV. 1077, 1081 (2011) [hereinafter Borden, *Allure and Illusion*] (presenting information on the rapidly increasing use of tax partnerships as a preferred choice of entity for years prior to 2008).

share of assets upon liquidation. A member of a tax partnership may have to choose between a tax benefit accompanied by an undesirable economic consequence or a more favorable economic consequence and the loss of a tax benefit.

An example of this tradeoff exists when a member of a tax partnership considers obtaining the benefit of a tax deduction by assuming a greater share of the tax partnership's liabilities. Assuming a greater share of liabilities may help a member of a tax partnership obtain the benefit of a tax deduction, but that benefit appears to bring with it the cost of an increased share of the tax partnership's liabilities. A member of a tax partnership who faces this decision would likely want to quantify the benefit of the tax deduction and the cost of assuming a greater share of the tax partnership's liabilities. Comparing the benefit and cost will help the member of the tax partnership decide how to proceed. Generally, a member of a tax partnership can easily measure the benefit of a tax deduction because the tax deduction is taken currently, but the member may have difficulty calculating the cost of assuming a larger share of the tax partnership's liabilities over a future period. To measure the cost of assuming a greater share of liabilities, the member must take into account several variables: the likelihood that the tax partnership will default on the liabilities, the likelihood that the member will be liable in the event of default, and the future point in time when the member would have to satisfy the liability. These variables help the member compute the expected cost of assuming the liability in future value terms. The member would then need to compute the present value of that expected cost to compare it to the current benefit of the deduction.

This Article presents a scenario where a member of a tax partnership must choose whether to assume a greater share of a tax partnership's liability and receive a tax deduction currently, or forgo the current deduction and avoid the greater share of liabilities. After presenting the scenario, the Article discusses the tax rules that create this dilemma. That discussion illustrates that a member of a tax partnership can deduct losses from the tax partnership only to the extent of the member's basis in the tax-partnership interests. A member subject to that limitation may increase the basis by assuming a greater share of the tax partnership's liabilities. The rules, therefore, allow the member to qualify for a greater deduction by assuming a greater share of the tax partnership's liabilities. After quantifying the benefit of the increased tax deduction, the discussion turns to quantifying the cost of assuming a larger share of the tax partnership's liabilities. The result of that effort is an elegant model that members of tax partnerships may use when deciding whether to assume a larger share of liabilities to allow for a larger tax deduction. The Article concludes by illustrating that this analysis can be applied to at least one other type of decision that members of a tax partnership make.

I. OVERVIEW OF RELEVANT PARTNERSHIP TAX RULES

A single scenario provides a context for discussing relevant partnership tax rules and the benefits and costs of assuming a greater share of the tax partnership's liabilities to obtain a larger tax deduction. The principles discussed in this single scenario apply to tax partnerships in all industries and of any size or complexity. Members of more complex tax partnerships may face additional factors that influence decision making, but the general process will be relevant across the spectrum of tax partnerships.

Anderson and Cooper are the sole members of Andper LLC, which is a tax partnership. Anderson and Cooper both have a 35 percent marginal tax rate, and they each have sufficient taxable income from sources other than Andper LLC to offset any losses or deductions that Andper LLC allocates to them. Anderson's adjusted basis in his interest in Andper LLC is \$10,000 and Cooper's adjusted basis in her interest is \$200,000. Anderson's capital account balance is negative \$175,000 and Cooper's balance is \$15,000. Andper LLC's has a single piece of property worth \$1,500,000 that has an adjusted basis of \$290,000. Andper LLC has \$300,000 of cash. Andper LLC also has \$750,000 of liabilities. Of these liabilities, \$660,000 is secured by the property, and the property is the only security against which the creditor can proceed if Andper LLC defaults on the loan. The lender of the remaining \$90,000 could proceed against any of Andper LLC's assets in the event Andper LLC defaults. Figure 1 presents Andper LLC's financial and tax situation at this point in the hypothetical.

Assets		Equity & Liabilities		
	Tax/Book		Tax	Book
Cash	\$300,000	Anderson	\$10,000	(\$175,000)
Property	\$290,000	Cooper	\$200,000	\$15,000
		Liability		\$750,000
Total	\$590,000		\$210,000	\$590,000

Andper LLC has \$120,000 of tax deductions in the current year. It anticipates that for the next several years it will break even or have slight losses. Anderson and Cooper believe that the cash currently in Andper LLC can fund operations for the next several years, that Andper LLC will turn profitable again in the future, and that the potential economic payout justifies staying with the partnership. The Andper LLC agreement allows it to make disproportionate distributions, and it provides that Andper LLC will allocate tax items of income and loss equally to Anderson and Cooper. Thus, Andper LLC will allocate \$60,000 of the loss to each of Anderson and Cooper. As the following discussion reveals, however, the tax rules

only permit Anderson to deduct \$10,000 of that loss (the amount equal to his basis in Andper LLC) if he does nothing to adjust his basis in his interest in Andper LLC. He may, however, take steps to increase the basis in his interest in Andper LLC, but if he decides to take those steps, he will have to consider how the cost of doing so compares to the benefit the tax deduction would provide. To know how to increase the basis in his Andper LLC interest and how that increase affects his tax, legal, and economic interests, Anderson will need a basic understanding of partnership taxation.

A. ALLOCATIONS AND CAPITAL ACCOUNTS

Tax law does not impose an entity-level federal income tax on tax partnerships.⁴ Instead, it adopts a system of pass-through taxation that allows tax partnerships to avoid the double taxation that corporations face.⁵ Consequently, members of tax partnerships are only taxed once on their income from tax partnerships while shareholders are taxed twice on their income from tax corporations.⁶ Partnership tax accomplishes pass-through taxation by requiring tax partnerships to compute items of income, gain, loss, and deduction and then pass those items through to their members.⁷ Thus, a tax partnership with taxable income will compute its taxable income and allocate it to its members. The members will then include their respective shares of the tax partnership's taxable income on their respective tax returns.⁸ Similarly, if a tax partnership has operating losses, it will compute those losses, allocate the losses to the members of the tax partnership, and the members will include their respective shares of the losses on their separate returns.⁹ For instance, if Andper LLC had \$120,000 of loss, it would allocate that loss equally to Anderson and Cooper as provided in the LLC operating agreement. Anderson and Cooper would each include \$60,000 of loss on their individual returns, unless otherwise disallowed.

The pass-through nature of tax partnerships and the absence of double taxation motivate businesses to take increasing advantage of this favorable alternative to traditional corporate tax. The dramatic rise in the number of businesses organizing as tax partnerships in recent years is evidence of such

4. *See* I.R.C. § 701 (2006).

5. Tax is imposed on the income of corporations at the entity level. *See* I.R.C. § 11. The income of corporations is also subject to a second level of taxation upon distribution to shareholders; shareholders generally must include dividends in their individual gross income. I.R.C. § 301(c).

6. *See* I.R.C. § 301(c).

7. *See* I.R.C. § 702. Tax partnerships must separately state some items of income, gain, loss, and deduction, but the scenario in this Article does not implicate that rule. *See* I.R.C. § 702(a) (listing items that must be separately stated at the tax partnership level).

8. *See* I.R.C. § 6222.

9. *See* I.R.C. § 6222.

motivation.¹⁰ While partnership taxation has a clear tax advantage over corporate taxation,¹¹ it is arguably more complicated than corporate tax.¹² In fact, the rules governing the allocation of tax items to members of tax partnerships are the heart of the complexities of partnership taxation.¹³ Understanding these rules is integral to understanding many aspects of partnership taxation and the attributes of tax partnerships. Specifically, a rudimentary understanding of the allocation rules is necessary to undertake the cost-benefit analysis required for the Andper LLC hypothetical.

The allocation of tax items provides members of tax partnerships with opportunities to create favorable tax outcomes or with other benefits that similarly situated taxpayers who are not members of tax partnerships cannot obtain.¹⁴ The allocation rules attempt to limit tax avoidance and other inappropriate benefits that members of tax partnerships would otherwise obtain by allocating tax and economic items.¹⁵ The rules attempt to limit abuses by requiring allocations of tax items to be made “in accordance with the partner’s interest in the partnership” or have “substantial economic effect.”¹⁶ The partner’s interest in the partnership refers to “the manner in which the [members of a tax partnership] have agreed to share the economic benefit or burden” of the tax partnership’s income and expense.¹⁷ The IRS will consider “all facts and circumstances relating to the economic

10. This trend is reflected in the following examples of tax partnership growth:

[D]uring the eight-year period ending with 2007, the number of tax partnerships increased 50%. The value of assets held by tax partnerships increased almost threefold to \$20 trillion, the amount of tax partnership income doubled to \$4 trillion, and the amount of depreciation deductions taken by tax partnerships increased significantly.

Borden, *Allure and Illusion*, *supra* note 3, at 1079 (footnotes omitted).

11. *See supra* note 5.

12. *See* Twenty Mile Joint Venture, PND, Ltd. v. Comm’r, 200 F.3d 1268, 1275 (10th Cir. 1999) (“We are mindful that ‘partnership taxation is . . . generally regarded as the most difficult area of the Internal Revenue Code.’” (quoting HAROLD GILL REUSCHLEIN & WILLIAM A. GREGORY, *THE LAW OF AGENCY AND PARTNERSHIP* § 256, at 411 (2d ed. 1990))).

13. *See* Borden, *Allure and Illusion*, *supra* note 3, at 1082 (“[A]llocating partnership income to the partners is the fundamental purpose and challenge of partnership taxation.”); Andrea Monroe, *Too Big to Fail: The Problem of Partnership Allocations*, 30 VA. TAX REV. 465, 472 (2011) (“Partnership allocations are the hallmark of subchapter K.”); Gregg D. Polsky, *Deterring Tax-Driven Partnership Allocations*, 64 TAX LAW. 97, 97 (2010) (“How to allocate a partnership’s tax items is the most fundamental issue in subchapter K of the Code, which governs the taxation of partnerships.” (footnotes omitted)).

14. *See generally* Borden, *Allure and Illusion*, *supra* note 3, at 1088–92 (discussing the economic significance of tax-item allocations); Bradley T. Borden, *Partnership Tax Allocations and the Internalization of Tax-Item Transactions*, 59 S.C. L. REV. 297, 338–45 (discussing opportunities for abuse that arise from separating tax items from economic items); Monroe, *supra* note 13, at 505–06 (claiming that sophisticated tax partnerships structure allocations to the strategic advantage of the members of the tax partnership).

15. *See generally* Monroe, *supra* note 13, at 482–92 (discussing the legislative history behind the regulations aimed at curbing abusive partnership allocations).

16. *See* Treas. Reg. § 1.704-1(b)(1)(i) (2012).

17. Treas. Reg. § 1.704-1(b)(3)(i).

arrangement of the partners” to determine the partner’s interest in the partnership.¹⁸ Allocating tax items in accordance with partners’ interests in a partnership appears to afford the members of a tax partnership considerable leeway for making allocations, but the lack of a clear definition of partners’ interests in a partnership leaves such allocations susceptible to IRS challenge.¹⁹

To avoid the uncertainty associated with allocating tax items in accordance with their interests in tax partnerships, members can structure allocations in a manner that conforms to the substantial economic effect standard, which consists of a two-part analysis.²⁰ First, an allocation must satisfy one of three tests to be considered as having economic effect: the economic-effect safe harbor, the alternate test for economic effect, or the test for economic-effect equivalence.²¹

A tax partnership’s allocations have economic effect under the economic-effect safe harbor if the tax partnership (1) maintains its capital accounts in accordance with the capital account maintenance rules prescribed in the income tax regulations, (2) liquidates in accordance with its positive capital account balances, and (3) requires its partners to restore negative capital account balances.²² Allocations meet the alternate test for economic effect if the tax partnership satisfies the first two elements of the economic-effect safe harbor, imposes a limited deficit restoration obligation on its members, and has a “qualified income offset” in the tax partnership agreement.²³ An allocation will have economic effect equivalence if it produces the same economic effect as either the general or alternate test for economic effect.²⁴ Finally, the economic effect of an allocation is substantial if there is “a reasonable possibility that the allocation (or allocations) will affect substantially” the money a partner will receive, irrespective of tax consequences.²⁵ Members of a tax partnership obtain the highest level of certainty that the IRS will respect their allocations by coming within the economic-effect safe harbor. Members of tax partnerships must understand, however, that aspects of the provisions of the

18. Treas. Reg. § 1.704-1(b)(3)(i).

19. The regulation’s guidelines are broad and do little to clarify precisely what a partner’s interest in the partnership might be under a given set of facts. This ambiguity may produce more opportunities for tax avoidance than the IRS would like. *See generally* Borden, *Allure and Illusion*, *supra* note 3, at 1105–12 (analyzing the ambiguities and deficiencies in the concept of partners’ interests in a partnership).

20. *See* Treas. Reg. § 1.704-1(b)(2).

21. *See* Treas. Reg. § 1.704-1(l)(2)(ii)(b), (d), (i).

22. *See* Treas. Reg. § 1.704-1(b)(2)(ii)(b).

23. *See* Treas. Reg. § 1.704-1(b)(2)(ii)(d).

24. *See* Treas. Reg. § 1.704-1(b)(2)(ii)(i).

25. Treas. Reg. § 1.704-1(b)(2)(iii). This Article is concerned with the basis loss limitation described below, *see infra* text accompanying notes 38–41, which does not ostensibly raise a question about the substantiality of the economic effect of an allocation. Therefore, the focus is on economic effect only.

economic-effect safe harbor can affect the legal rights and obligations with respect to the tax partnership and their shares of partnership liability.

As stated above, the economic-effect safe harbor requires the tax partnership to properly maintain the members' capital accounts.²⁶ The capital account maintenance rules provide that a tax partnership increases a member's capital account by the amount of money and net value of property the member contributes to the tax partnership and by partnership income and gain that the tax partnership allocates to the member.²⁷ A tax partnership decreases a member's capital account by the amount of money and net value of property the tax partnership distributes to the member, allocations of certain partnership expenditures, and allocations of partnership losses and deductions.²⁸ Thus, the allocations of tax items affect the capital accounts of members of a tax partnership.

The second and third parts of the economic-effect safe harbor dictate the rights and obligations the members would have upon liquidation of the tax partnership. The second part provides that the tax partnership must make liquidating distributions in accordance with the members' positive capital account balances.²⁹ The third part provides that members who have deficit capital account balances must make contributions or other payments to the tax partnership, which the tax partnership, upon liquidation, would then use to satisfy its obligations to creditors and make distributions to members of the tax partnership in liquidation of their positive capital account balances.³⁰

A simple example, derived from the Andper LLC scenario, helps illustrate how capital accounts affect the members' rights and obligations. Assume that Andper LLC has \$165,000 of liabilities and no assets when Anderson and Cooper decide that it is time to liquidate it. Also assume that its operating agreement provides that it will liquidate in accordance with the members' capital account balances and requires members to restore deficit capital accounts. At the time of liquidation, Anderson has a \$175,000 deficit capital account balance and Cooper has a \$10,000 positive capital account balance. According to the operating agreement, Anderson must contribute \$175,000 to Andper LLC, which Andper LLC would use to satisfy its \$165,000 liability and distribute \$10,000 to Cooper in payment of her positive capital account balance. Thus, Anderson's \$175,000 deficit capital account balance obligated him to contribute \$175,000 to Andper LLC on liquidation, and Cooper's \$10,000 positive capital account balance entitled her to \$10,000 on liquidation. The economic-effect safe harbor thus

26. See *supra* text accompanying note 22; Treas. Reg. § 1.704-1(b)(2)(ii)(b)(1).

27. See Treas. Reg. § 1.704-1(b)(2)(iv).

28. See Treas. Reg. § 1.704-1(b)(2)(iv).

29. See *supra* text accompanying note 22; Treas. Reg. § 1.704-1(b)(2)(ii)(b)(2).

30. See *supra* text accompanying note 22; Treas. Reg. § 1.704-1(b)(2)(ii)(b)(3).

affected their rights and obligations in Andper LLC, which may, in turn, affect their shares of Andper LLC's liabilities.

B. BASIS AND THE BASIS LOSS LIMITATION

Every member of a tax partnership has an interest in the tax partnership, and tax law treats that interest the same way it treats other property interests. Consequently, members of tax partnerships have an adjusted basis in their interests in the tax partnership.³¹ The uninitiated may confuse capital accounts and the adjusted basis of members' interests in a tax partnership. To avoid such confusion, remember that capital accounts represent the equity portion of the balance sheet³² and bases help account for the tax attributes of a property interest represented by the members' interests in the tax partnership.³³

The adjusted basis of an interest in a tax partnership can affect the tax consequences of allocations and other transactions, such as gain or loss on the disposition of the interest.³⁴ A member's basis in their interest in a tax partnership is initially equal to the adjusted basis of any property the member contributed to the tax partnership, plus the amount of any money contributed.³⁵ Allocations of the tax partnership's items of income and gain increase a member's basis in his tax-partnership interest.³⁶ Distributions from the tax partnership and allocations of losses and deductions decrease a member's basis in his tax-partnership interest.³⁷ These adjustments cannot, however, reduce a member's basis below zero.³⁸ Upon a cash distribution, a member only recognizes income to the extent that any money distributed exceeds that partner's adjusted basis in the tax partnership interest.³⁹ The amount of an allocated deduction or loss that a member recognizes also cannot exceed the adjusted basis of the member's interest in the tax partnership.⁴⁰ Consequently, any portion of an allocated loss or deduction that exceeds a member's adjusted basis will not be allowed, but will be suspended until the member has sufficient basis to free it up.⁴¹ This limitation on the amount of allocated loss that a member of a tax

31. See I.R.C. §§ 705, 722 (2006).

32. See Borden, *Allure and Illusion*, supra note 3, at 1087–88.

33. See *id.* at 1088.

34. See Treas. Reg. § 1.741-1(a) (2000).

35. See I.R.C. § 722.

36. See I.R.C. § 705(a)(1).

37. See I.R.C. §§ 705(a)(2) (allocations of losses and deductions), 733 (distributions). Section 705(a)(3) provides additional basis adjustments, which arise only within partnerships in the oil and mineral business, that are not discussed here.

38. See I.R.C. §§ 705(a)(2), 733.

39. See I.R.C. § 731(a)(1).

40. See Treas. Reg. § 1.705-1(a)(3) (2005).

41. See I.R.C. § 704(d); Treas. Reg. § 1.704-1(d)(1) (2012).

partnership may recognize is a key aspect of this Article and is hereinafter referred to as the basis loss limitation.

An example illustrates how a member's adjusted basis in a tax-partnership interest may limit the amount of an allocated deduction or loss that the member may recognize. Recall that Anderson's basis in his Andper LLC interest is \$10,000. Andper LLC anticipates \$120,000 of operating loss in the current year and no other tax items. According to the Andper LLC operating agreement, Andper LLC must allocate that \$120,000 operating loss equally between Anderson and Cooper. Therefore, it allocates \$60,000 of the loss to both Anderson and Cooper. Because Cooper has \$200,000 basis in her interest in Andper LLC, she can deduct the full \$60,000 loss allocated to her, and her basis would decrease to \$140,000 as a result of the allocation. The allocation of loss to Anderson decreases the \$10,000 basis he has in his Andper LLC interest to zero.⁴² The amount of the \$10,000 basis also limits the amount of the allocated loss that Anderson may deduct. Therefore, even though Andper LLC allocates \$60,000 of loss to Anderson, he is only able to deduct \$10,000 of it. The remaining \$50,000 of loss gets suspended, and Anderson will be able to deduct it only when he has sufficient basis to free up the deduction. Something must happen for Anderson to have sufficient basis to free up the suspended loss. Before considering how Anderson might free up the loss, consider why he would be interested in doing so.

The basis loss limitation can have significant economic consequences. Given the pass-through nature of tax partnerships, members can deduct their allocable shares of tax-partnership losses against income from other sources.⁴³ Such deductions reduce a member's taxable income and, accordingly, tax liability.⁴⁴ Thus, the value of a deduction is the amount of the loss multiplied by the member's marginal tax rate. For instance, if Anderson earned \$350,000 from sources other than Andper LLC in Year 1 and Andper LLC allocated \$60,000 of deductible loss to him, the loss would reduce his taxable income to \$290,000. Because Anderson's marginal tax rate is 35 percent, the deduction would reduce his tax liability from \$122,500 ($\$350,000 \times 35\%$) to \$101,500 ($\$290,000 \times 35\%$). The value of the \$60,000 tax deduction to Anderson would therefore be \$21,000 ($\$122,500 - \$101,500$). The value of the deduction also equals the amount of the deduction multiplied by the marginal tax rate ($\$60,000 \times 35\% = \$21,000$). The deduction allocated from Andper LLC could thus provide a \$21,000 tax benefit to Anderson. Insufficient basis in his interest in Andper

42. See Treas. Reg. § 1.705-1(a)(3)(i).

43. See I.R.C. § 165. Loss deductions are subject to the rules set forth under this statute and the regulations promulgated thereunder.

44. See BORIS I. BITTKER & LAWRENCE LOKKEN, FEDERAL TAXATION OF INCOME, ESTATE & GIFTS ¶ 20.1.1 (2012), available at Westlaw WGL-IEG.

LLC limits the amount of allocated loss he may deduct, and deprives him of the economic benefit of the disallowed loss.

Consider how insufficient basis limits the amount of loss Anderson may deduct and causes him to lose the benefit of the deduction. Because Anderson's basis in his interest in Andper LLC is only \$10,000, he may deduct only \$10,000 of the \$60,000 loss allocated to him. Because of the basis loss limitation, the allocation provides Anderson a \$3,500 ($\$10,000 \times 35\%$) tax benefit instead of the \$21,000 benefit he would have obtained if he could have deducted the full amount. Thus, the basis loss limitation denies Anderson \$50,000 of tax deduction currently, which translates into a lost current benefit of \$17,500. Because the law suspends the \$50,000 of disallowed loss, Anderson may be able to deduct it if his basis increases in the future, or if he can find a way to increase the basis currently.

Anderson's missed opportunities will most likely inspire Anderson (or his tax advisor) to seek ways to mitigate the basis loss limitation. If mitigating the basis loss limitation comes with a cost, Anderson will be interested to know what that cost would be. If the cost of increasing the basis loss limitation is less than the benefit of deducting the full amount of the loss currently, Anderson should be interested in taking steps to change the basis limitation. An obvious way to obtain the benefit of the suspended loss is to do something that will increase his basis in his Andper LLC interests. As the following discussion illustrates, Anderson can increase his basis in his Andper LLC interest by increasing his allocation of Andper LLC income, contributing additional capital to Andper LLC, or assuming a greater share of Andper LLC's liabilities.

II. INCREASING BASIS TO MITIGATE THE BASIS LOSS LIMITATION

The basis a member has in a tax-partnership interest increases when the tax partnership allocates items of income or gain to the member, when the member makes a contribution to the tax partnership, and when the law deems the member to make a contribution as a result of increasing the member's share of the tax partnership's liabilities.⁴⁵ A member seeking to increase the basis of a tax-partnership interest should consider each of these alternatives and the cost associated with pursuing any one of them.

A. INCREASING BASIS WITH INCOME ALLOCATION

Members of a tax partnership may have some control over allocations of a tax partnership's income or gain and can use those allocations to increase the basis of a tax-partnership interest. The members cannot increase the bases of their interests in the tax partnership with gain

45. See I.R.C. §§ 705(a)(1), 722.

allocations, however, if the tax partnership does not have income or gain immediately available. Over time, if the tax partnership turns profitable, allocations of income or gain would increase the members' bases and free up suspended losses.⁴⁶ A member of a tax partnership could therefore obtain the benefit of the loss over time as the tax partnership recognized and allocated income and gain. Nonetheless, the delayed recognition of the loss diminishes its value because time-value-of-money principles reveal that an economic benefit today is worth more than the same dollar amount of benefit in the future.⁴⁷

Consider how future gains could free up Anderson's \$50,000 suspended loss. Anderson and Cooper believe that, after some period of time, Andper LLC will once again recognize taxable income consistently and that the property will continue to increase in value. Therefore, at some point Andper LLC will allocate gain or income in an amount that will free up Anderson's \$50,000 suspended loss. Assume that they anticipate that Andper LLC will break even for the next four years and will recognize \$100,000 of income in the fifth year, which Anderson will report and absorb the tax effect of on the last day of Year 5.⁴⁸ Andper LLC will allocate \$50,000 of the income to Anderson. Anderson will recognize the \$50,000 as income on his individual return and his basis in his Andper LLC interest will increase by \$50,000. That increase will free up Anderson's suspended \$50,000 loss and he will receive the \$17,500 tax benefit of recognizing the loss at the end of Year 5. To determine the present value of recognizing the loss in Year 5, Anderson must discount the \$17,500 tax benefit to present value dollars. Assuming a 5 percent discount rate, that discounted value would be \$10,232.⁴⁹ Clearly, \$10,232 is less than the \$17,500 tax benefit of taking the deduction currently, so Anderson may prefer to consider the other two alternatives for increasing his basis in his interest in Andper LLC. He would therefore have to consider actually or constructively contributing additional capital to the tax partnership. As the following discussion clarifies, members of a tax partnership make actual contributions by transferring money or property to the tax partnership. They make constructive contributions by increasing their shares of the tax partnership's liabilities.

46. See I.R.C. § 705(a)(1); Treas. Reg. § 1.704-1(d).

47. See FRANKLIN ALLEN, STEWART C. MYERS & RICHARD A. BREALEY, *PRINCIPLES OF CORPORATE FINANCE* 16 (8th ed. 2006) ("The first basic principle of finance is that *a dollar today is worth more than a dollar tomorrow*, because the dollar today can be invested to start earning interest immediately.").

48. Anderson would probably absorb the tax effect sometime in Year 12, but to simplify the time-value-of-money computation, this example uses the end of Year 11 as the absorption date.

49. See *infra* text accompanying note 204 for a more detailed discussion on the present value formula. Here, the present value of the \$17,500 tax benefit is calculated using the following equation:

$$PV = \$17,500 \div (1 + 0.05)^{11} = \$10,232$$

B. INCREASING BASIS WITH ACTUAL CONTRIBUTIONS

A member of a tax partnership can increase the basis in a tax-partnership interest by contributing cash or property to the tax partnership.⁵⁰ Thus, by making such contributions a member could free up losses suspended by the basis loss limitation. For instance, Anderson could free up the \$50,000 suspended loss by contributing \$50,000 to Andper LLC. The \$50,000 contribution would allow Anderson to deduct the full amount of loss allocated to him, and therefore provide him an immediate \$17,500 tax benefit ($\$50,000 \times 35\%$). The contribution should also increase Anderson's economic interest or distribution rights or decrease his contribution obligation in Andper LLC by \$50,000 (his capital account would increase from negative \$175,000 to negative \$125,000, decreasing his contribution obligation by \$50,000). Thus, Anderson does not actually pay \$50,000 for the \$17,500 tax benefit. He pays the \$50,000 for a larger interest in Andper LLC and gets the \$17,500 tax benefit. If Anderson values the \$50,000 increased interest in Andper LLC the same as he values holding the \$50,000 outside Andper LLC, the cost of making the contribution would be zero, and the benefit would be \$17,500. Consequently, he would most likely prefer to make the contribution under such conditions.

Anderson may, however, value the increased interest at some amount less than the value of holding the cash and investing it elsewhere. For example, Anderson may attribute a 35 percent discount on the contribution because he shares control of Andper LLC with Cooper.⁵¹ If that were the case, the contribution would cost him \$17,500 ($\$50,000 \times 35\%$ discount). The value of the increased interest Anderson takes in Andper LLC would be only \$32,500. Under these assumptions, Anderson would gain no financial advantage by making the cash contribution—he would gain the \$17,500 of tax benefit from the deduction but lose \$17,500 due to the 35

50. See I.R.C. §§ 705, 722.

51. The use of discounts in valuing partnership interests is prevalent in the area of estate and gift planning. Such discounts include minority and marketability discounts. See, e.g., *Estate of Weinberg v. Comm'r*, 79 T.C.M. (CCH) 1507, 1510 (2000) (“In this case, the parties agree that in valuing the subject limited partnership interest a minority discount and a lack of marketability discount must be applied. The minority discount accounts for a decedent’s lack of control over the property. The lack of marketability discount accounts for the fact that there is no ready market for a decedent’s interest in the property. While the parties agree that both discounts are appropriate, they disagree about the amount of each discount, and, thus, they disagree about the value of the subject limited partnership’s interest.” (citations omitted)); *Rojas v. Duarte*, No. 08-11-00072-CV, 2012 WL 5987548, at *12 (Tex. Ct. App. Nov. 30, 2012) (acknowledging that an expert’s application of a discount rate was part of “a relatively precise method for calculating the value of the partnership” as of a specific date); *In re Marriage of Cole*, 763 P.2d 39, 40 (Mont. 1988) (“reduc[ing] the value of [a partnership] interest by 30 percent to take into account the share’s nonmerchantability”); DAVID WESTFALL ET AL., *ESTATE PLANNING LAW & TAXATION* ¶ 2.05[1] (2012), available at Westlaw WGL-EPTAX (discussing the application of minority stock interests and marketability discounts). Similar discounts could be used by a member of a tax partnership to determine the value of investing additional funds in the partnership.

percent minority discount.⁵² He would therefore be interested in considering other alternatives that cost less than contributing the cash to Andper LLC. He would thus consider the cost of making a constructive contribution by assuming a larger share of Andper LLC's liabilities.

C. INCREASING BASIS BY ASSUMING A LARGER SHARE OF TAX-PARTNERSHIP LIABILITIES

Instead of contributing cash, Anderson may prefer to use someone else's money to help him obtain the tax benefit of the \$50,000 suspended loss deduction. Partnership tax law would allow Anderson to do that by treating an increase in his share of Andper LLC's liabilities as a constructive contribution of cash.⁵³ Tax law treats a member's constructive contribution of cash the same way it treats an actual contribution of cash for purposes of adjusting the member's basis in the tax partnership's interests.⁵⁴ Thus, a member's adjusted basis in the tax partnership interest increases by the amount of the constructive cash contribution, which is the amount by which a member's share of the tax partnership's liabilities increases. The result of these rules is that a member's basis loss limitation is mitigated by the amount of the member's increased share of the tax partnership's liabilities. Hence, a member of a tax partnership can reap the tax benefits of a contribution without actually contributing additional capital to a tax partnership.⁵⁵

Because tax law recognizes increased shares of a tax partnership's liabilities as cash contributions, Anderson could increase his basis in his Andper LLC interest by assuming a larger share of Andper LLC's liabilities. Therefore, if Anderson assumed an additional \$50,000 of Andper LLC's liabilities, that increased share would be a \$50,000 constructive contribution that would increase his basis by \$50,000. The increased basis would free up the \$50,000 suspended loss.

Because Anderson could increase the basis of his interest in Andper LLC by increasing his share of Andper LLC's liabilities, he will be interested to know how to increase that share. The method for increasing his

52. The loss results from Anderson giving up total control of the \$50,000. If he does not contribute the \$50,000 to the Andper LLC, he can unilaterally control its use. Once he contributes the money to Andper LLC, he shares control with Cooper. That loss of control makes the \$50,000 worth less to Anderson in Andper LLC than it would be if he had retained full control of it.

53. See I.R.C. § 752(a).

54. See I.R.C. §§ 722, 752.

55. The cost of increasing a partner's basis is always less when done by assumption of partnership liability rather than contribution because of the time value of money. To illustrate this, compare the costs of increasing a partner's basis by \$100. To increase the partner's basis through contribution, the cost to the partner would be \$100 because the partner would have to contribute \$100. On the other hand, the partner can increase his basis by assuming partnership liability of \$100. The cost to the partner is not \$100 because the partner will be paying this amount at some future point in time. The present value of paying \$100 at some future point in time will always be less than \$100.

share may depend upon whether Andper LLC's liabilities are recourse or nonrecourse, and which, if not both, of the liabilities he would prefer to assume a share of. If a member of a tax partnership wishes to assume a larger share of a tax partnership's liabilities, tax law allows the member to choose from the tax partnership's existing liabilities without regard to the quality of the loans or the remoteness of the likelihood that the member would have to satisfy the liability.⁵⁶ Therefore, if a tax partnership has multiple loans and the quality of one loan is high compared to the other loans, the member could choose to assume a larger share of the high quality loan without a concomitant downward adjustment of his constructive contribution.⁵⁷ The ability to cherry pick loans could make a constructive contribution a very attractive feature because the probability that the member will be liable for it would be small.⁵⁸ All that remains is deciding which loan to assume a greater share of, deciding how to assume that greater share, and obtaining approval from the other members of the tax partnership, if needed, to assume the greater share.

A tax partnership's liabilities may be classified as recourse, non-recourse, or some combination of the two.⁵⁹ The classification of a tax partnership's liabilities is relevant because the classification determines the rules that govern the allocation of the liabilities among the members of the tax partnership.⁶⁰ The allocations determine the members' shares of the liabilities. The following discussion begins with an examination of the definition of recourse liabilities, then considers how tax law allocates such liabilities of a tax partnership to its members, and finally explores how members of a tax partnership may affect the allocation of a tax partnership's

56. See Richard M. Lipton & Todd D. Golub, *The Tax Court Drains Canal Corporation's Leveraged Partnership* Transaction, 113 J. TAX'N 340, 351 (2010) (citing Treas. Reg. § 1.752-1(a) for the proposition that "what matters is which party would bear the loss in the most extreme situations, without regard to the likelihood of that situation arising"). Practitioners rely upon this reasoning to support allocations of tax-partnership liabilities with respect to so-called bottom-dollar guarantees, a position that the Internal Revenue Service is scrutinizing. See Amy S. Elliott, *Official Equates Canal-Like Disguised Sale Abuses with Those of Tax Shelter Era*, TAX NOTES TODAY, May 23, 2013, available at LEXIS 2013 TNT 100-3. Although the credit worthiness of a borrower is an important factor in determining the quality of a loan, other factors, such as the loan's priority with respect to other loans, can affect the quality of a loan. Therefore, a single borrower may hold multiple loans of varying quality.

57. The member may need approval from other partners to cherry pick loans. That approval could be difficult to come by if other members did not wish to alter their shares of the liability.

58. The discussion below reveals how the quality of a loan affects its default probability. See *infra* text accompanying notes 163–65.

59. See Treas. Reg. § 1.752-2(i) (2006) ("If one or more partners bears the economic risk of loss as to part, but not all, of a partnership liability . . . that liability is treated as two or more separate liabilities for the purposes of section 752. The portion of liability as to which one or more partners bear the economic risk of loss is a recourse liability and the remainder of the liability, if any, is a nonrecourse liability.").

60. The method used to derive the partner's share of the liability is governed by Treas. Reg. § 1.752-2 for recourse, and Treas. Reg. § 1.752-3 (2000) for non-recourse.

recourse liabilities. After that discussion, the focus turns to the allocation of nonrecourse deductions.

1. Partners' Shares of Tax-Partnership Recourse Liabilities

A tax partnership's liabilities are recourse to the extent that any member of the tax partnership or person related to the member bears the economic risk of loss for that liability.⁶¹ The rules determine whether members of a tax partnership bear the economic risk of loss by considering a constructive liquidation and ascertaining whether any of the members would be liable for any portion of the liability.⁶² The rules use the same test to determine each member's share of a tax partnership's recourse liability.⁶³ So, the analysis of the rules governing the allocation of a tax partnership's recourse liabilities is the same as the analysis of the rules governing whether the liabilities are recourse. A member's share of a tax partnership's recourse liability is equal to the portion of that liability for which the individual member bears the economic risk of loss.⁶⁴ Generally,

a partner bears the economic risk of loss for a partnership liability to the extent that, if the partnership constructively liquidated, the partner or a related person would be obligated to make a payment to any person (or a contribution to the partnership) because that liability becomes due and payable.⁶⁵

The rules governing a constructive liquidation adopt several assumptions.⁶⁶ First, all of the tax partnership's liabilities become payable in full at the time of the constructive liquidation.⁶⁷ Second, the tax partnership's property, including cash, is deemed to have a value of zero unless the property was contributed to secure a liability of the tax partnership.⁶⁸ Third, the tax partnership disposes of all its property in a taxable transaction for no consideration, unless the property is the sole security for a liability (i.e., liabilities are deemed consideration received for property that is the sole security for the liability).⁶⁹ If the property serves as the sole security for a liability, the rules deem the tax partnership to dispose of the property as part of the constructive liquidation in a taxable transaction for consideration equal to the amount of the underlying liability.⁷⁰ A member of a tax partnership bears the risk of loss for the

61. See Treas. Reg. § 1.752-1(a)(1) (2005).

62. See Treas. Reg. § 1.752-2(b).

63. See Treas. Reg. § 1.752-2(f).

64. See Treas. Reg. § 1.752-2(a).

65. Treas. Reg. § 1.752-2(b)(1).

66. See Treas. Reg. § 1.752-2(b).

67. See Treas. Reg. § 1.752-2(b)(i).

68. See Treas. Reg. § 1.752-2(b)(1)(ii).

69. See Treas. Reg. § 1.752-2(b)(1)(iii).

70. See Treas. Reg. § 1.752-2(b)(2)(i).

liability to the extent the member would have to make a contribution to the tax partnership or pay another person as a result of the constructive liquidation.⁷¹ To the extent a member bears the risk of loss for a tax-partnership liability, the liability is recourse. Before considering who bears the risk of loss of a particular liability, consider a constructive liquidation of Andper LLC.

Recall that Andper LLC has two assets: \$300,000 of cash and property with a \$290,000 basis. The property is subject to a \$660,000 liability and is the only recourse the lender has in the event Andper LLC defaults. Andper LLC also has \$90,000 of other liability that is secured generally by all of the Andper LLC assets. The constructive liquidation would treat the cash and property as worthless, so Andper LLC would sustain a \$300,000 loss on the worthlessness of the cash. Because the property is subject to a liability that is only enforceable against the property, the constructive liquidation will treat Andper LLC as selling the property in full satisfaction of the \$660,000 liability. That hypothetical sale would result in \$370,000 of gain (\$660,000 amount realized from the creditor being deemed to take the property subject to the liability minus the \$290,000 adjusted basis Andper LLC had in the property⁷²).

Andper LLC would allocate the \$370,000 gain and \$300,000 loss equally to Anderson and Cooper according to the Andper LLC operating agreement. The allocation of gain would increase each member's capital account by \$185,000, and the allocation of the loss would decrease each member's capital account by \$150,000. Thus, Anderson's negative \$175,000 capital account balance will increase to \$10,000 with the allocation of his share of the \$185,000 gain and decrease to negative \$140,000 with allocation of his share of the \$150,000 loss. Cooper's \$15,000 positive capital account balance will increase to \$200,000 with her \$185,000 share of the gain and decrease to \$50,000 with her \$150,000 share of the loss. Thus, following these steps of the constructive liquidation, Anderson's capital account balance would be negative \$140,000 and Cooper's capital account balance would be positive \$50,000. At this point, Andper LLC's balance sheet would appear as presented in Figure 2.

71. See Treas. Reg. § 1.752-2(a), (b).

72. See I.R.C. §§ 1001(a)–(b) (2006) (providing that gain realized is the excess of amount realized over adjusted basis), 1011(a) (defining adjusted basis); Treas. Reg. § 1.1001-2(a)(1) (1980) (providing that discharge of a liability is part of amount realized).

Figure 2: Andper LLC's Interim Constructive-Liquidation Financial and Tax Situation

Assets		Equity & Liabilities		
	Tax/Book		Tax	Book
Cash	\$0	Anderson	\$45,000	(\$140,000)
Property	\$0	Cooper	\$235,000	\$50,000
		Liability	\$0	\$90,000
Total	\$0		\$280,000	\$0

The next step of the constructive liquidation is to determine whether either or both of Anderson and Cooper are obligated to pay the \$90,000 liability that is still outstanding and due, and if either or both of them are, to what extent they are obligated. Whether they are obligated will determine whether the liability is recourse. If they are obligated, the extent to which they are obligated will help determine their shares of the liability.

In determining whether a member of a tax partnership is obligated to satisfy a portion of a tax partnership's liability, the members must consider all the facts and circumstances.⁷³ Facts and circumstances taken into account include contractual obligations, tax-partnership agreements, and governing state partnership law,⁷⁴ all of which can affect who bears the risk of loss of a tax partnership's liability.⁷⁵ As contractual obligations, tax-partnership agreements, and state law can create or eliminate an obligation to satisfy a tax partnership's liability, the members of a tax partnership can therefore use arrangements such as indemnification, subrogation, and guarantee agreements to affect who is deemed to bear the risk of loss with respect to tax-partnership liabilities. Absent such arrangements, state entity law and tax-partnership agreements would determine who bears the risk of loss with respect to a tax partnership's liability. Nonetheless, tax law provides that a member does not bear the economic risk of loss to the extent that the member is entitled to reimbursement from another member or a person related to another member.⁷⁶

The members of a tax partnership must consider all the facts and circumstances concurrently to determine who bears the risk of loss with respect to a particular tax-partnership liability. The following analysis considers several factors in succession and provides the opportunity to begin with basic aspects and layer on greater complexity. First, the analysis

73. See Treas. Reg. § 1.752-2(b)(3). If the facts and circumstances "make it unlikely that the obligation will ever be discharged," the analysis disregards such a contingent liability. Treas. Reg. § 1.752-2(b)(4). This Article assumes that the two liabilities being discussed are likely to be discharged.

74. See Treas. Reg. § 1.752-2(b)(3).

75. See Treas. Reg. § 1.752-2(a).

76. See Treas. Reg. § 1.752-2(b)(1), (5).

considers the effect state law has on the risk-of-loss analysis. Second, it adds the effect the tax-partnership agreement can have on the risk-of-loss analysis. Finally, it considers the effect that other arrangements can have on the analysis. The overall analysis therefore reveals how the various bodies of law can work together to determine which, if any, members of a tax partnership bear the economic risk of loss for a tax partnership's liabilities. It also reveals the extent to which they bear such risk of loss.

a. Effect of State Law

Each state has laws that govern general partnerships, limited partnerships, and limited liability companies.⁷⁷ Specific rules relating to member liability of these various entities may vary from state to state, but a discussion of the uniform laws that govern each type of entity illustrates how state laws can affect the extent to which members of a tax partnership may bear the risk of loss of the tax partnership's liabilities. The entity laws are default rules.⁷⁸ Consequently, they may be overridden by an entity's governing agreement.⁷⁹ The following part of the analysis simply examines the effects of the default rules, assuming there is no agreement that overrides them. The next part discusses the effect of entity agreements.

The Uniform Partnership Act of 1914 (UPA) or the Revised Uniform Partnership Act of 1997 (RUPA) govern general partnerships. The majority of states have adopted RUPA; all but one of the remainder follow UPA.⁸⁰ The differences between UPA and RUPA with respect to partner liability do not significantly affect this analysis. Under UPA, a partner is jointly and severally liable for the partnership's tort liabilities, but is only jointly liable for the partnership's contract liabilities.⁸¹ Under RUPA, a partner is jointly

77. See generally 2–10 BRADLEY T. BORDEN & ROBERT J. RHEE, LIMITED LIABILITY ENTITIES: A STATE BY STATE GUIDE TO LLCs, LPS, AND LLPS (2012) (discussing and presenting the laws of each state). Other state-law entities, such as limited liability partnerships, can also be tax partnerships but the analysis in this Article limits its discussion to laws governing general partnerships, limited liability companies, and limited partnerships.

78. See e.g., UNIF. P'SHIP ACT (RUPA) prefatory note (1997) ("The Uniform Partnership Act (1994) . . . gives supremacy to the partnership agreement in almost all situations. The [Uniform Partnership Act (1994)] is, therefore, largely a series of 'default rules' that govern the relations among partners in situations they have not addressed in a partnership agreement."); see also RUPA § 103 cmt. 1 ("To the extent that the partners fail to agree upon a contrary rule, RUPA provides the default rule."); UNIF. LTD. P'SHIP ACT (ULPA) § 110 (2001); REVISED UNIF. LTD. LIAB. CO. ACT (ULLCA) § 103 (2006).

79. See RUPA prefatory note; see RUPA § 103 cmt. 1; see ULPA § 110; see ULLCA § 103.

80. UPA was adopted in every state except Louisiana. *Legislative Fact Sheet—Partnership Act*, UNIF. LAW COMM'N, [http://www.uniformlaws.org/LegislativeFactSheet.aspx?title=Partnership Act](http://www.uniformlaws.org/LegislativeFactSheet.aspx?title=Partnership%20Act) (last visited Mar. 26, 2013). Over half the states have subsequently adopted RUPA. *Id.*

81. See UNIF. P'SHIP ACT (UPA) § 15 (1914). When partners are jointly and severally liable on an obligation, each partner is liable for the entire amount of the debt regardless of each individual partner's precise share of liability. See J. WILLIAM CALLISON & MAUREEN SULLIVAN, PARTNERSHIP LAW AND PRACTICE: GENERAL AND LIMITED PARTNERSHIPS § 14:2 (2011), available at Westlaw PTNRSHPLP. Consequently, a creditor, when enforcing a debt obligation

and severally liable for both the partnership's tort and contract liabilities.⁸² This Article focuses on contract liabilities, so distinction is apparent, but at least one court has held that the distinction between joint liability and joint and several liability in the context of tax partnerships is illusory.⁸³ Thus, this Article considers the legal effects of joint and several liability. If partners are jointly and severally liable for a partnership liability, the partnership's creditors may collect the full amount of a partnership liability from any one or more of the partners.⁸⁴ Nonetheless, a partner that satisfies a disproportionately large share of a partnership's liability may have a right of contribution and indemnity from non-paying partners.⁸⁵ Furthermore, the operation of state law and the partnership agreement may entitle a paying partner to repayment from non-paying partners.⁸⁶

The liquidation rules provided in RUPA and UPA can also affect who bears the risk of loss of the partnership's liabilities. RUPA and UPA both provide that upon liquidation, members have certain rights and obligations; specifically, members are entitled to any credit balance in their accounts and must pay any debit balance to the partnership or an appropriate party.⁸⁷ Credit entries to accounts include contributions to the partnership and allocations of partnership profits, and debit entries include distributions from the partnership and allocations of partnership losses.⁸⁸ Under both UPA and RUPA, partners share partnership losses in proportion to their shares of the profits.⁸⁹ Additionally, each partner shares the profits

where partners are jointly and severally liable, has the option to enforce the liability against all of the obligors by a joint action or to enforce the liability against any of the obligors by an individual action. *Id.*

82. See RUPA § 306.

83. See *e.g.*, *Shar's Cars, L.L.C. v. Elder*, 97 P.3d 724, 730 (Utah Ct. App. 2004) ("However, even under joint liability, where the assets of the partnership are insufficient to satisfy partnership debts, the partners may be individually liable for the partnership's contracts. Thus, 'upon each partner rests an absolute liability for the whole amount of every debt due from the partnership and although originally a joint contract, it may be separate as to its effects.'" (citations omitted)).

84. See discussion *supra* note 81; see also BLACK'S LAW DICTIONARY 933 (8th ed. 2004).

85. See CALLISON & SULLIVAN, *supra* note 81, at §§ 10:6, 14:2. See generally *Graham v. Goodman*, 850 S.W.2d 351 (Mo. 1993) (discussing indemnification and contribution).

86. See RUPA § 405(b). This has been further emphasized by courts:

While a partner ordinarily must enforce his rights against other partners through an equitable suit for dissolution and accounting and generally may not bring an action at law for money until that accounting has occurred, there are exceptions to the rule. Moreover, most of the cases considering the general rule have not applied it because of various exceptions. One of those exceptions is when the action is one for contribution after the partnership has already dissolved. This proceeding represents that very exception.

In re Watts, 244 B.R. 823, 832 (Bankr. N.D. Cal. 2000) (citations omitted).

87. See UPA §§ 38, 40; RUPA § 807(b).

88. See *Treas. Reg. § 1.704-1(b)(2)(iv)* (1960) (providing guidelines for the maintenance of capital accounts).

89. See UPA § 18(a); RUPA § 401(b).

equally.⁹⁰ As a result, unless the partnership agreement provides otherwise, the partners share losses equally under both UPA and RUPA. These rules provide tools sufficient to analyze who would bear risk of loss for Andper LLC's \$90,000 liability if Andper LLC was a general partnership governed by RUPA.⁹¹

Recall that Anderson's capital account balance is negative \$140,000 and Cooper's is positive \$50,000.⁹² Andper LLC also owes a creditor \$90,000. Under the constructive liquidation, the liability has become due and Andper LLC has no assets against which the creditor can collect the outstanding balance. If Andper LLC was a general partnership, under RUPA, Anderson and Cooper would be jointly and severally liable for the outstanding contract liability.⁹³

If the creditor proceeded against Anderson and he was to pay the \$90,000 liability, the payment could be deemed a contribution to Andper LLC. That would increase Anderson's account balance from negative \$140,000 to negative \$50,000, assuming that RUPA account balances equal the partners' capital account balances from the original funds. RUPA would thus require him to contribute an additional \$50,000 to Andper LLC to satisfy the negative balance in his account. Andper LLC would then distribute the \$50,000 to Cooper. Because Anderson would pay the liability and have no recourse against Cooper, under state law, Anderson bears the risk of the \$90,000 liability.

The outcome would most likely be the same if the creditor first collected the \$90,000 from Cooper under her joint and several liability. If that were to happen, Cooper's account balance would increase by \$90,000 to \$140,000. Thereafter, RUPA would obligate Anderson to contribute \$140,000 to Andper LLC to cover his negative account balance. Andper LLC would pay that \$140,000 to Cooper to satisfy her credit balance. Thus, state law makes Cooper whole, so Anderson is left to bear the risk of loss of the liability. That would make the liability a recourse liability for the purpose of determining the partners' shares of it. Under these facts, Anderson's share of the \$90,000 would be \$90,000 because he bears its risk of loss, and Cooper's share would be zero. Because neither party bore the risk of loss of the \$660,000 liability, that liability is not a recourse liability. Other rules would determine the members' shares of that liability.

90. See UPA § 18(a); RUPA § 401(b).

91. The Authors realize that the names of general partnerships generally would not include the entity label "LLC," but names of limited liability companies generally must. See ULLCA § 108(a) (2006). Andper LLC will retain its name throughout the discussion to maintain conformity with the name originally given to the parties earlier in the Article.

92. Because Andper LLC's agreement provides for equal allocation of profits and losses, just as state law does under RUPA, the capital account balances would equal the partners' RUPA debit and credit balances.

93. See RUPA § 306.

Determining the members' shares of a tax partnership's liabilities would change if Andper LLC were a limited partnership. Although each state has its own body of law governing limited partnerships, this Article relies upon the Uniform Limited Partnership Act (ULPA) for rules governing limited partnerships. Limited partnerships have general partners and limited partners.⁹⁴ ULPA provides generally that limited partners are not personally liable for the obligations of the limited partnership.⁹⁵ Thus, under state law, a limited partner would only be liable for partnership liabilities if it agreed to such liability in the limited partnership agreement or some other document. On the other hand, general partners are jointly and severally liable for the liabilities of a limited partnership.⁹⁶ Consequently, absent any agreement to the contrary, general partners would bear the risk of loss of a limited partnership's liabilities that a creditor could collect against the general assets of the limited partnership. To illustrate, assume Anderson is the limited partner and Cooper is the general partner of Andper LLC, a limited partnership.⁹⁷

Recall the analysis must determine whether Anderson or Cooper bears the risk of loss with respect to the \$90,000 liability. Under the constructive liquidation, the liability has become due, and Andper LLC has no assets that the creditor can claim in satisfaction of the liability. The question therefore is whether the creditor can collect all, or a part of, the liability from either or both of Anderson and Cooper. As the general partner of Andper LLC, Cooper would be liable for all of its obligations.⁹⁸ Therefore, the creditor could proceed against Cooper for the full amount of the \$90,000 liability. Cooper would therefore appear to bear the risk of loss with respect to the liability.

After satisfying the liability, Cooper would consider whether she has any recourse against Anderson. The payment of the liability should increase Cooper's account to positive \$140,000, which would mirror Anderson's \$140,000 deficit. Even though Anderson has a deficit balance in his account, ULPA appears to protect him from liability for that amount. Absent any provision in the Andper LLC agreement to the contrary,⁹⁹ Cooper would not appear to have any claim against Anderson under ULPA

94. See ULPA §§ 301, 401 (2001).

95. See ULPA § 303.

96. See ULPA § 404.

97. The authors acknowledge that state law would most likely require the name of the limited partnership to include "L.P." or a similar classification. See ULPA § 108(b). For the sake of consistency, this discussion uses Andper LLC as the name, even though it may not be purely consistent with the law.

98. See ULPA § 404.

99. As discussed below, tax-partnership agreements may contain allocation provisions that adopt the economic-effect safe harbor and require maintenance of capital accounts. See *infra* text accompanying notes 102–06. Capital accounts, as governed by federal tax law, can be different from ULPA accounts. For instance, ULPA does not require a limited partner to contribute to cover a negative account balance. See ULPA § 303.

for any portion of the \$90,000 she paid. If that were the case, Cooper would bear the risk of loss for the \$90,000, the liability would be a recourse liability, and Andper LLC would allocate 100 percent of the liability to Cooper.

Anderson's negative account balance suggests that Andper LLC made disproportionate distributions to him. If that is the case, Cooper may examine whether they were unlawful distributions under ULPA.¹⁰⁰ If they were unlawful, Cooper may have recourse against Anderson for all or a portion of the \$140,000 of Anderson's negative account. If Cooper does have recourse, Anderson may actually bear the risk of loss with respect to the \$90,000.

This illustrates how state entity law may influence who bears the economic risk of loss with respect to a limited partnership's liabilities. The discussion below regarding limited liability companies will illustrate how the entity agreement or other arrangements can also affect who bears the risk of loss and override the state default rules. Many of the principles that apply to overrule state law with respect to limited liability companies would also apply with respect to limited partnerships.

The Uniform Limited Liability Company Act (ULLCA) governs limited liability companies. ULLCA provides that members of a limited liability company generally are not liable for the company's debts and obligations.¹⁰¹ This rule provides the basis for analyzing whether either Anderson or Cooper would bear the economic risk of loss for the \$90,000, assuming that Andper LLC was a limited liability company. Based upon the default rule in ULLCA, the creditor would not have a cause of action against Anderson or Cooper. If there is no other state law provision (such as an unlawful distributions provision) in ULLCA that would require Anderson or Cooper to pay the liability, neither one of them would bear the economic risk of loss with respect to the liability. Therefore, it would not be a recourse liability. Nonetheless, the Andper LLC agreement or other arrangements could expose Anderson or Cooper to the risk of loss with respect to the liability.

b. Effect of the Tax-Partnership Agreement

The state law governing liability of members of limited liability companies and partners only applies if the agreement governing the entity is silent on the issue and no other agreement works to override state entity law.¹⁰² If the tax partnership's agreement overrides state law, then the agreement could determine the extent to which the partners bear the economic risk of loss. Consequently, a tax-partnership agreement can affect

100. See ULPA §§ 508, 509.

101. See ULLCA § 304 (2006).

102. See UPA § 18(a); RUPA § 103; ULLCA § 110(a)–(b).

the risk of loss members of a tax partnership bear with respect to the liabilities of tax partnerships. The tax-partnership agreement may place such obligation on a member of the tax partnership explicitly or through the allocation provisions. In fact, the unwary drafter of a tax-partnership agreement may place allocation language in the tax-partnership agreement and unwittingly expose one or more members of the tax partnership to a portion of the tax partnership's liabilities. For example, the drafter of a tax-partnership agreement may include the economic-effect safe harbor language in the tax partnership's agreement, which would include unconditional deficit restoration obligations.¹⁰³ If the tax-partnership agreement contains such a provision, then upon liquidation of a member's interest in the tax partnership, the member would be obligated to make a contribution to the tax partnership in an amount equal to the member's negative capital account balance.¹⁰⁴ Andper LLC helps illustrate the effect an operating agreement can have on the members' liability exposure and on the extent to which the member bears the risk of loss with respect to a liability.

Assume that Andper LLC's operating agreement complies with the economic-effect safe harbor, so it obligates Andper LLC to maintain capital accounts, liquidate in accordance with positive capital account balances, and require the members to restore deficit capital account balances.¹⁰⁵ Recall that as part of the constructive liquidation, Anderson has a \$140,000 deficit capital account balance. Upon liquidation, he is required to restore that balance. Therefore, he would contribute \$140,000 to Andper LLC, \$90,000 of which would go to the creditor and the other \$50,000 of which would go to Cooper in satisfaction of her \$50,000 positive capital account balance. Because Anderson's contribution satisfied the \$90,000 liability, Anderson would bear the economic risk of loss of the liability.¹⁰⁶

This example illustrates one way that a tax partnership's agreement can override the ULLCA default rules and expose the members of a limited liability company to the risk of loss with respect to a limited liability company's obligations. As the running example illustrates, without the deficit restoration obligation, Anderson would not appear to bear the risk of loss with respect to any of Andper LLC's liabilities. Nonetheless, the inclusion of an unlimited deficit restoration obligation exposes Anderson to such liabilities. The example thus illustrates how members of a tax partnership may use the tax partnership's agreement to alter their shares of

103. See *supra* note 22; Treas. Reg. § 1.704-1(b)(2)(ii)(b)(3) (1960).

104. See Treas. Reg. § 1.704-1(b)(2)(ii)(b)(3).

105. See *supra* note 22.

106. A similar result would be obtained if Andper LLC was a limited partnership and Anderson was the limited partner. If the Andper LLC partnership agreement included deficit restoration obligations, Anderson would have to contribute \$140,000 to satisfy his deficit restoration obligation.

tax-partnership liabilities. It also illustrates that inadvertent, careless drafting can expose the members to liability for the obligations of an entity that would otherwise provide liability protection to the members.

c. Effect of Other Arrangements and Laws

Instead of using the tax-partnership agreement to affect who bears the economic risk of loss with respect to a tax partnership's liabilities, the members could use other arrangements. The regulations specifically provide that other contractual arrangements that are not part of a tax-partnership agreement can also affect which members of a tax partnership bear the risk of loss with respect to the tax partnership's liabilities.¹⁰⁷ Such arrangements include guarantees, indemnifications, and reimbursement agreements.¹⁰⁸ Subrogation rights that accompany any of these and other arrangements could also affect who bears the risk of loss for a tax partnership's liabilities. Contractual arrangements may shift liability by placing one member under an obligation to make a payment to a person who is not a member of the tax partnership. A guarantee may not change the analysis, however, because state law may provide the guaranteeing member recovery rights against the other members.¹⁰⁹ A member who guarantees the liabilities of a tax partnership and pays pursuant to such guarantee might be able to recover from the other members using one of two possible mechanisms, subrogation or reimbursement,¹¹⁰ but not both.¹¹¹ Under subrogation, "a guarantor who pays a debtor's liability succeeds to the rights of the creditor (i.e., steps into the creditor's shoes) and can assert

107. See Treas. Reg. § 1.752-2(b)(3)(i) (2006).

108. See Treas. Reg. § 1.752-2(b)(3)(i). A guarantee is different from indemnification and reimbursement agreements. Guarantee "is now used primarily in financial and banking contexts in the sense 'a promise to answer for the debt of another.'" BRYAN A. GARNER, *A DICTIONARY OF MODERN LEGAL USAGE* 394 (2d ed.1995). Indemnify means "to make good a loss that someone has suffered because of another's act or default; [or] . . . to promise to make good such a loss." *Id.* at 436. Similarly, reimburse means "to make restoration or payment of an equivalent to." MERRIAM-WEBSTER'S COLLEGIATE DICTIONARY 983 (10th ed. 1998). Hence, indemnify and reimburse are synonyms. Consequently, an indemnification or reimbursement agreement would achieve the same result—recovery by the party that satisfied the liability. To illustrate, consider the following example: Xena loans money to Yoda where Zell guarantees the loan. Yoda enters into an indemnification or reimbursement agreement with Zell that obligates Yoda to reimburse Zell in the event that Yoda defaults on the loan and Zell has to pay on the guarantee. Here, when Yoda defaults, Xena would use the guarantee to enforce the loan against Zell. Zell would then use the indemnification or reimbursement agreement against Yoda to recover the payment Zell made to Xena.

109. See Treas. Reg. § 1.752-2(b)(5); Bruce A. McGovern, *Liabilities of the Firm, Member Guaranties, and the At Risk Rules: Some Practical and Policy Considerations*, 7 J. SMALL & EMERGING BUS. L. 63, 93 (2003) ("One who guarantees a debtor's liability and is required to pay the liability because of the debtor's default is entitled to recover the amounts paid from the debtor." (footnote omitted)).

110. See McGovern, *supra* note 109.

111. See *id.* at 93–94.

against the debtor whatever rights the original creditor had.”¹¹² Moreover, the guaranteeing partner’s right to subrogation is provided under equity.¹¹³ Hence, even if the guarantee arrangement does not explicitly mention the subrogation right, the guaranteeing member would still possess the right to subrogation.¹¹⁴ Under reimbursement, the guarantor member asserts an independent right against the debtor instead of the right of a creditor.¹¹⁵ The independent right “is based on the debtor’s implied promise to reimburse amounts that the [guaranteeing member] has paid.”¹¹⁶ If the guaranteeing member possesses recovery rights, then that member does not bear the risk of loss with respect to the recovered amount.¹¹⁷

In a general partnership, the guaranteeing member would possess subrogation rights against the other members because all general partners can be held personally liable to a creditor.¹¹⁸ Hence, a guarantor general partner would not bear the economic risk of loss for that portion that relates to the subrogation rights.¹¹⁹ Likewise, a guarantor limited partner in a limited partnership could have subrogation rights against the general partner, despite the fact that the limited partner guaranteed the partnership’s liabilities.¹²⁰ Hence, the limited partner would not appear to bear the economic risk of loss for a tax partnership liability that it guarantees.¹²¹ Conversely, if a member of a limited liability company guarantees one or more of the company’s liabilities, the member would not normally have recourse against the other members of the limited liability company for obligations that arise as a result of a guarantee. Instead, each other member has limited liability, assuming the ULLCA default rules apply.¹²² Subrogation rights only give the guarantor the rights the creditor had, and because the creditor could not proceed against the other members without

112. *Id.* at 93 (footnote omitted).

In the case of a guarantee by a limited partner of a recourse liability of a partnership, the limited partner will in most instances be only secondarily liable and will have a right of subrogation against the partnership or the general partners (as the primary obligors) if required to satisfy the guarantee. Thus, a limited partner would not normally become ultimately liable merely by guaranteeing recourse debt.

Richard S. Bobrow & David E. Boyle, *Washington Tax Watch*, 4 J. PARTNERSHIP TAX’N 172, 173 (1987) (footnote omitted).

113. *See* *Prairie State Nat’l Bank v. United States*, 164 U.S. 227, 231 (1896) (“The doctrine of subrogation is a pure, unmixed equity, having its foundation in the principles of natural justice” (quoting *Aetna Life Ins. Co. of Hartford v. Middleport*, 124 U.S. 534, 549 (1888))).

114. *See* McGovern, *supra* note 109.

115. *See id.*

116. *Id.*

117. *See* Treas. Reg. § 1.752-2(f) ex. 4 (2006).

118. *See* UPA § 15 (1914); RUPA § 306 (1997).

119. *See* Treas. Reg. § 1.752-2(b)(5).

120. *See* Treas. Reg. § 1.752-2(f) ex. 3; *see also* ULPA § 404(a) (2001).

121. *See* Treas. Reg. § 1.752-2(f) ex. 3.

122. *See* ULLCA § 303 (2006).

some arrangement to the contrary, the guarantor member would not be able to proceed against the other members. As a result, the guarantor member of a limited liability company would generally bear the economic risk of loss for any of the company's liabilities it guarantees.

Like a guarantee, an indemnification or a reimbursement agreement may affect who bears the risk of loss with respect to a tax partnership's liabilities. An indemnification agreement provides that if a party (an indemnitee) suffers loss, another party (an indemnitor) will compensate for the loss.¹²³ A reimbursement agreement appears to be similar to an indemnification agreement.¹²⁴ These types of arrangements therefore can reduce an obligation of a member to make a payment with respect to a tax partnership's liabilities. For example, a member's obligation to make a payment with respect to a tax partnership's liability is reduced if the member is entitled to reimbursement from another member.¹²⁵

An example illustrates how a guarantee may or may not affect who bears the risk of loss of Andper LLC's \$90,000 liability. Assume the Andper LLC operating agreement does not include deficit restoration obligations, but the party who loaned Andper LLC the \$90,000 required Cooper to guarantee the liability. With a guarantee in effect at the time of the constructive liquidation, the lender could collect the \$90,000 from Cooper. Under subrogation, Cooper would have the same rights the lender had, but she would not appear to be able to collect any portion of the \$90,000 from Anderson because ULLCA protects Anderson from the liability of Andper LLC. Perhaps Cooper could have a cause of action against Anderson if distributions to Anderson were unlawful, but barring such other causes of action, Cooper would bear the risk of loss for the \$90,000 liability under these facts. Thus, the liability would be recourse, and Cooper's share of it would be \$90,000.

Now assume that Cooper guaranteed the \$90,000 loan, but the Andper LLC operating agreement includes deficit restoration obligations. Under these facts, Anderson has the obligation to contribute \$140,000 (the amount of his deficit capital account balance) to Andper LLC upon liquidation. If the lender collects the \$90,000 from Cooper, Cooper's payment would be tantamount to a contribution to Andper LLC, increasing her capital account to \$140,000. She would receive that entire amount when Andper LLC distributed cash to her to liquidate her positive capital account balance.

123. See BLACK'S LAW DICTIONARY 783–84 (8th ed. 2004); Dianne M. Hansen, *The Effect of Partial Settlements on the Rights of Non-Settling Defendants in Federal Securities Class Actions: In Search of a Standardized Uniform Contribution Bar Rule*, 60 UMKC L. REV. 91, 94 (1991) (“[I]ndemnification is a ‘shifting of an entire loss’ to another who has an equitable duty to pay alone . . .”).

124. See, e.g., *Betz v. Fagan*, 962 S.W.2d 432, 435 (Mo. Ct. App. 1998) (“[T]he dictionary definition of indemnification suggests a meaning similar to reimbursement . . .” (internal quotation marks omitted)).

125. See Treas. Reg. § 1.752-2(b)(5).

Alternatively, if the law did not view her payment of the loan as a contribution, she would have the right of subrogation and collect the \$90,000 from Andper LLC as a subrogee. Either way, the deficit restoration obligation puts Anderson on the hook to contribute \$140,000 to Andper LLC. That amount will be applied to liquidate Cooper's positive capital account balance, repay Cooper as subrogee, or simply satisfy the liability. Under any of these scenarios, Anderson would bear the risk of loss with respect to the \$90,000 liability. Thus, the \$90,000 liability is recourse and Anderson's share of the liability would be \$90,000.

This example concludes the discussion of the rules that define recourse liability and the allocation of such tax-partnership liabilities to the members of a tax partnership. The discussion reveals that Anderson could consider modifying the partnership agreement or entering into some other arrangement to increase his share of Andper LLC's liabilities to help free up the \$50,000 suspended loss. For example, if the Andper LLC operating agreement does not contain a deficit restoration obligation, Anderson and Cooper could amend the agreement to include a \$50,000 deficit restoration obligation for Anderson. Alternatively, Anderson could consider guaranteeing \$50,000 of Andper LLC's liabilities or agree to indemnify Andper LLC for up to \$50,000 of one of the liabilities. Anderson could also contribute a \$50,000 self-made note to Andper LLC, which would have the effect of creating a \$50,000 deficit restoration obligation.¹²⁶ The Andper LLC liability shield would prevent Anderson from paying the liability and proceeding against Cooper under a theory of subrogation, so Anderson would bear the risk of loss as a result of such arrangements.

The type of arrangement could affect the probability that Anderson will have to make a payment. Even though the constructive liquidation analysis does not distinguish between notes based upon the likelihood that the tax partnership will default on them, a member of a tax partnership would undoubtedly be interested in such likelihood when deciding whether to assume a larger share of the liability. For example, Anderson would pay under a deficit restoration obligation or guarantee only if Andper LLC were unable to make the payment. An indemnification arrangement could obligate Anderson to reimburse Andper LLC when it paid down the liability. This latter result probably would not be Anderson's first choice. Alternatively, Anderson could consider assuming a share of Andper LLC's nonrecourse liability either by assuming the risk of loss of such liability through a guarantee or other arrangement or by changing the allocation formula used to allocate nonrecourse liabilities.

126. See Treas. Reg. § 1.704-1(b)(2)(ii)(c)(1) (1960).

2. Partners' Shares of Tax-Partnership Nonrecourse Liabilities

By definition, a tax partnership's liability is a nonrecourse liability if none of the members of the tax partnership bears the economic risk of loss with respect to the liability.¹²⁷ Consequently, if a constructive liquidation of the tax partnership does not obligate any member to pay the liability, the liability is nonrecourse for purposes of allocating tax-partnership liability.¹²⁸ Under this definition of nonrecourse liability, the liabilities of a tax partnership could be nonrecourse even if the tax partnership's creditors had recourse against all of the tax partnership's assets. Regardless of the creditors' rights with respect to assets of the tax partnership, a tax partnership's liabilities are recourse for the purpose of allocating them to the members of the tax partnership only to the extent one or more of the members bear the economic risk of loss with respect to the liabilities.¹²⁹ The Andper LLC example helps illustrate this rule.

Recall that when Andper LLC constructively liquidated, the creditor of the \$660,000 liability was only able to collect that liability against the property securing it. As a consequence, it did not have rights to collect the liability from Anderson or Cooper under any of the scenarios discussed above. That being the case, neither Anderson nor Cooper bear the risk of loss with respect to the \$660,000 liability. Consequently, the liability is nonrecourse. The classification of \$90,000 could vary depending upon the facts. If Andper LLC were a general partnership or limited partnership, the creditor would be able to collect the liability from one or more of the members.¹³⁰ Under those facts, one or more of the members would bear the risk of loss with respect to the liability, so it would be a recourse liability for purposes of allocating it. If Andper LLC were a limited liability company, however, the liability could be either recourse or nonrecourse depending upon the facts. If ULLCA default rules applied and the creditor could not collect the liability from either of the members,¹³¹ neither of them would bear the risk of loss with respect to the liability, so the liability would be nonrecourse for the purpose of allocating it. If the Andper LLC operating agreement included unlimited deficit restoration obligations or if one of the members guaranteed the \$90,000 liability, one or more of them would bear the risk of loss with respect to the liability because they would have to restore deficit capital account balances. Under such assumptions, the \$90,000 would be recourse for purposes of allocating it among the partners.

Assume that the \$90,000 is a nonrecourse liability because ULLCA default rules apply to Andper LLC. If Anderson would like to have a larger

127. See Treas. Reg. § 1.752-1(a)(2).

128. See Treas. Reg. §§ 1.752-1(a)(2), 1.752-2(b).

129. See Treas. Reg. § 1.752-1(a)(2).

130. See RUPA § 306 (1997); ULPA § 404(a) (2001).

131. See ULLCA § 304(a) (2006).

share of that liability, Anderson and Cooper could amend the Andper LLC operating agreement to give Anderson a deficit restoration obligation in an amount sufficient to shift the risk of loss with respect to the liability to Anderson.¹³² Consequently, if the Andper LLC agreement included a \$50,000 deficit restoration obligation, Anderson would bear the risk of loss for that \$50,000,¹³³ and his share of that liability should increase by \$50,000.¹³⁴ Thus, by amending the Andper LLC operating agreement, Anderson and Cooper could convert the \$90,000 nonrecourse liability to \$50,000 of recourse liability and \$40,000 of nonrecourse liability.

Alternatively, Anderson could guarantee \$50,000 of the \$660,000 to convert that portion from a nonrecourse to a recourse liability. Creating the guarantee would undoubtedly require the creditor's and Cooper's participation. Obtaining Cooper's consent will most likely be required for any of the alternatives. Anderson's assumption of a greater share of Andper LLC's liabilities would shift a portion of Andper LLC's liabilities away from Cooper and reduce her shares of liabilities and the basis she has in her Andper LLC interests.¹³⁵ Consequently, Cooper would agree to such shifts only if the consequences to her were not detrimental. In this scenario, Cooper's basis appears to be large enough to absorb a constructive distribution that would result from a decrease in her share of Andper LLC's liabilities. Consequently, she would likely consent to Anderson's request to shift liabilities. Anderson and Cooper may both prefer, however, to structure any liability shift in a manner that does not require the additional approval of one or more creditors.

If one or more liabilities of a tax partnership is nonrecourse, and the members of the tax partnership want to alter their shares of the liabilities, they may want to know if they can do so without making the liability recourse. That decision requires an understanding of how the law allocates nonrecourse liabilities. Because members of a tax partnership do not bear the economic risk of loss with respect to the tax partnership's nonrecourse liabilities, tax law cannot allocate nonrecourse liabilities based upon who

132. Deficit restoration obligations are an important part of the test for economic effect. *See* Treas. Reg. § 1.704-1(b)(2)(ii)(c) (1960). To satisfy the alternate test for economic effect, the Andper LLC operating agreement would have to include additional provisions. *See* Treas. Reg. § 1.704-1(b)(2)(ii)(d). This analysis focuses on the risk of loss and assumes the IRS will respect Andper LLC's allocations of tax items either because they are in accordance with the members' interests in the tax partnership or satisfy the test for economic effect under one of the three possible methods.

133. *See supra* text accompanying notes 22, 61–71.

134. This assumes that Anderson and Cooper share the \$90,000 liability equally prior to amending the Andper LLC operating agreement to include the \$50,000 deficit restoration obligation for Anderson. Following the amendment, Anderson would bear the risk of loss for \$50,000 of the liability and he and Cooper would most likely share the remaining \$40,000 equally. *See infra* text accompanying notes 136–43 (describing the allocation of nonrecourse liabilities).

135. *See* I.R.C. §§ 705(a)(2), 752(b) (2006) (providing that distributions decrease basis and that a decrease in shares of a tax partnership's liabilities is a constructive distribution, respectively).

bears the risk of loss with respect to the liability. Tax law therefore applies other rules to allocate a tax partnership's nonrecourse liabilities. A member's share of a tax partnership's nonrecourse liabilities equals the sum of: (1) the member's share of the tax partnership's minimum gain with respect to a nonrecourse liability; (2) the amount of any built-in gain that would be allocated to the member with respect to property secured by a nonrecourse liability; and (3) the member's share of any excess nonrecourse liabilities not otherwise allocated shall be allocated in accordance with the partner's share of partnership profits.¹³⁶ Rules mandate that tax partnerships allocate a property's built-in gains to the member who contributed it.¹³⁷ None of Andper LLC's property is contributed property, so the members of the tax partnership will not be able to alter the allocation of built-in gain to affect the allocation of the tax partnership's nonrecourse liabilities. Thus, to reallocate Andper LLC's nonrecourse liabilities, without converting them to recourse liabilities, Anderson and Cooper would have to alter their shares of partnership minimum gain or adjust their profit-sharing agreement.

Stated generally, a tax partnership's minimum gain is the excess of a nonrecourse liability over the adjusted basis of the property securing the liability,¹³⁸ and exists when the tax partnership takes a depreciation deduction with respect to property securing a nonrecourse liability and that deduction causes the adjusted basis of the property to sink below the amount of the outstanding balance of the nonrecourse liability.¹³⁹ Tax partnerships allocate those depreciation deductions (i.e., nonrecourse deductions) in compliance with special rules governing the allocation of nonrecourse deductions.¹⁴⁰ If the tax partnership ever disposes of property securing the nonrecourse liability that has an adjusted basis less than the amount of the secured nonrecourse liability, the tax partnership would recognize gain that is no less than the amount of the difference between the liability and adjusted basis of the property.¹⁴¹ The minimum gain rules

136. See Treas. Reg. § 1.752-3(a) (2000). Note that the description of the elements of the computation are simplified for purposes of this article. See BORDEN & RHEE, *supra* note 1, at chs. 21–22 (discussing minimizing gain and allocations under I.R.C. § 704(c)).

137. See I.R.C. § 704(c); Treas. Reg. § 1.704-3 (2010).

138. See Treas. Reg. §§ 1.704-2(d)(1) (2011) (including “any gain the partnership would realize if it disposed of the property subject to that liability for no consideration other than full satisfaction of the liability” in partnership minimum gain), (g)(1) (calculating a partner's share of partnership minimum gain). The computation of a tax partnership's minimum gain requires more than merely comparing the tax partnership's nonrecourse deduction to the securing property's adjusted basis. See Treas. Reg. § 1.704-2(d). Nonetheless, the broad definition used in this context is sufficient to illustrate how members of a tax partnership might try to adjust their shares of the tax partnership's minimum gain.

139. See, e.g., Treas. Reg. § 1.704-2(f)(7) ex. 1.

140. See Treas. Reg. § 1.704-2(b)–(e) (prescribing rules for allocating nonrecourse deductions).

141. Gain recognized on the disposition of property is amount realized minus the property's adjusted basis. See I.R.C. § 1001(a). The amount realized includes the amount of nonrecourse liability secured by the property. See *Comm'r v. Tufts*, 461 U.S. 300, 313 (1983); *Crane v. Comm'r*, 331 U.S. 1, 13 (1947); Treas. Reg. § 1.1001-2(a)(1) (1980).

provide generally that the tax partnership must allocate that gain (i.e., the minimum gain) to the members of the tax partnership in the same proportion that it allocated the nonrecourse deductions.¹⁴² An example illustrates nonrecourse deductions and minimum gain chargeback, and how it affects the allocation of nonrecourse liabilities.

Recall that Andper LLC holds a piece of property that has a \$290,000 adjusted basis and is subject to a \$660,000 liability that is secured solely by the property. Because the \$660,000 liability exceeds the \$290,000 adjusted basis by \$370,000, Andper LLC has \$370,000 of partnership minimum gain. Assume that minimum gain came into existence as Andper LLC took depreciation deductions with respect to the property. Assume also that Andper LLC allocated those depreciation deductions equally between Anderson and Cooper. That being the case, Andper LLC would have allocated \$185,000 of depreciation deductions to each of Anderson and Cooper. Assuming that those were nonrecourse deductions, Anderson's and Cooper's respective shares of the \$370,000 minimum gain would be \$185,000. If Andper LLC were to sell the property in satisfaction of the \$660,000 liability and no other consideration, it would allocate \$185,000 of the \$370,000 recognized (i.e., the minimum gain) to each of Anderson and Cooper. Thus, the allocation of the minimum gain mirrors the allocation of the nonrecourse deductions.

That information not only enables Andper LLC to allocate the minimum gain portion of the \$660,000 nonrecourse deduction, but also allows it to allocate the remaining portion of the liability to Anderson and Cooper. Anderson and Cooper share the \$370,000 minimum gain equally, so their respective shares of that portion of the \$660,000 nonrecourse liability would be \$185,000. That would leave \$290,000 of the \$660,000 liability to allocate to Anderson and Cooper (\$660,000 liability minus the \$370,000 allocated according to the members' shares of minimum gain). Andper LLC would allocate that \$290,000 remaining portion of the nonrecourse liability to Anderson and Cooper equally in accordance with their profit-sharing arrangement.¹⁴³ Thus, it would allocate \$145,000 to each of Anderson and Cooper. The total amount of the \$660,000 liability allocated to each of Anderson and Cooper would therefore be \$330,000 (\$185,000 allocated based on minimum gain, and \$145,000 allocated based upon profit-sharing ratios). Anderson and Cooper would each have a \$330,000 share of Andper LLC's \$660,000 nonrecourse liability.

A subtext of this example is that adjusting shares of minimum gain will be difficult if the tax partnership has already allocated nonrecourse deductions to its members. Once the tax partnership allocates nonrecourse deductions, it will have great difficulty reallocating the minimum gain that

142. See Treas. Reg. § 1.704-2(b)(2).

143. See Treas. Reg. § 1.704-2(b)(1).

the allocations of deductions created. Members of a tax partnership may adjust their shares of the tax partnership's minimum gain by amending the tax partnership's agreement. Such an amendment would, however, have to shift the allocation of nonrecourse deductions on a prospective basis only. Such an amendment could cause the sum of nonrecourse deductions allocated to one member to increase (the amount allocated to at least one other member would have to decrease by the same amount as the increase), which, in turn, would increase that member's share of minimum gain going forward. Unfortunately, even though an increase in minimum gain can increase a member's share of a tax partnership's nonrecourse liabilities, the resulting basis increase is offset by the basis reduction resulting from the allocation of the accompanying nonrecourse deduction. Thus, adjusting shares of minimum gain would appear to not help alleviate the basis loss limit. A simple example from the Andper LLC scenario illustrates why adjusting shares of Andper LLC's minimum gain will not help alleviate the basis loss limit.

Andper LLC holds property subject to a \$660,000 liability, and the creditor's only claim is against the property securing the liability. The property's adjusted basis is \$290,000, but Andper LLC qualifies for a \$100,000 depreciation deduction this coming year. Assuming that the outstanding principal balance of the loan will remain at \$660,000, the \$100,000 for the depreciation deduction will be a nonrecourse deduction because it will cause the adjusted basis of the property to be another \$100,000 less than the outstanding balance of the loan it secures. The deduction will also create another \$100,000 Andper LLC minimum gain. If Andper LLC allocates the deduction equally to Anderson and Cooper, they will each have a \$50,000 share of Andper LLC's \$100,000 minimum gain. Andper LLC's minimum gain would become \$470,000. To allocate the \$660,000 of its nonrecourse liability, Andper LLC would first allocate the \$470,000 equally to Anderson and Cooper and would then allocate the remaining \$190,000 equally according to the profit-sharing ratio. Consequently, the equal allocation of the deduction would not affect Anderson's and Cooper's shares of the nonrecourse liability.

Anderson and Cooper could alter their shares of the nonrecourse liability by agreeing to allocate the full \$100,000 nonrecourse deduction to Anderson. If Andper LLC allocated all \$100,000 to Anderson, his share of the partnership minimum gain would increase from \$185,000 to \$285,000. Cooper's share of minimum gain would remain at \$185,000. To allocate its \$660,000 nonrecourse liability, Andper LLC would first allocate \$285,000 of the \$470,000 minimum gain to Anderson and the remaining \$185,000 of the minimum gain to Cooper. It would allocate the remaining \$190,000 of nonrecourse liability equally to Anderson and Cooper according to their profit-sharing arrangement. Thus, Anderson's total share of the \$660,000 nonrecourse liability will be \$380,000 (\$285,000 based on minimum gain

and \$95,000 according to profit sharing). Cooper's share of the nonrecourse liability will be \$280,000 (\$185,000 based on minimum gain and \$95,000 according to profit sharing). Thus, the allocation of nonrecourse deductions increases Anderson's share of Andper LLC's \$660,000 nonrecourse liability by \$50,000 and decreases Cooper's share by \$50,000. Anderson would then have a \$50,000 constructive contribution and Cooper would have a \$50,000 constructive distribution. Unfortunately, the constructive contribution will not help Anderson claim the \$50,000 suspended loss.

Even though the \$50,000 increase in Anderson's share of the \$660,000 nonrecourse liability will create a \$50,000 constructive contribution, the additional nonrecourse deduction allocated to him will offset the basis increase from the constructive contribution. Recall that Andper LLC had to allocate an additional \$50,000 of nonrecourse deduction to Anderson to increase his share of Andper LLC's \$660,000 liability by that amount. That \$50,000 will decrease his basis in his Andper LLC interest, which will offset the increase from the constructive contribution. Consequently, the offset prevents the change in share of minimum gain from helping free up the suspended loss.

Altering shares of partnership minimum gain or built-in gain does not appear to help free up losses suspended by the basis loss limit. Members of tax partnerships are therefore left to alter their shares of nonrecourse liability either by adjusting their shares of profit and loss or by using a mechanism that converts at least a portion of the nonrecourse liability to a recourse liability. Absent a compelling reason to adjust the profit-sharing ratio, members would likely choose the latter alternative, or they would focus exclusively on reallocating recourse liabilities. The example above illustrates that an amendment to a tax-partnership agreement or creation of another arrangement, which converts a nonrecourse liability into a recourse liability, could be the best way to shift shares of the tax partnership's liabilities and create a constructive contribution.

This discussion illustrates that the members of a tax partnership may increase the basis they have in their interests in a tax partnership by assuming a greater share of the tax partnership's liability. A member of a tax partnership may assume greater liability by agreeing to guarantee more liability, agreeing in a tax partnership's agreement to restore a larger deficit capital account balance, agreeing to indemnify other members for any share of liability for which they may otherwise bear the risk of loss, and by otherwise agreeing to bear the risk of loss for one or more of a tax partnership's liabilities. Members must, however, decide whether assuming a greater share of a tax partnership's liability for the purpose of freeing up losses suspended by the basis loss limit is economically sound. If the member knows the benefit that a tax deduction will provide, the member must know how much it will cost to assume a share of the tax partnership's liability that is sufficient to free up the suspended loss. In Anderson's case,

he knows taking the \$50,000 deduction will give him a \$17,500 tax benefit currently. He would like to know how much it will cost him to assume an extra \$50,000 of Andper LLC's liabilities. He can use an expected value to determine the cost of assuming a greater share of risk of loss for one of Andper LLC's liabilities. If, for instance, his preferred choice for assuming that greater risk of loss is amending the Andper LLC operating agreement to add a \$50,000 deficit restoration obligation, he could use the expected cost model to estimate the cost of doing that.

III. EXPECTED COST OF TAX-PARTNERSHIP DEFAULT

A member of a tax partnership who assumes the risk of loss with respect to a liability of the tax partnership faces the possibility that the tax partnership will default on the liability and the member will have to satisfy the obligation. That possibility brings with it a cost. The cost of assuming a greater share of a tax partnership's liability is the present value of the amount the member would be expected to pay on the larger share of the liability in the event a tax partnership defaults on the liability.¹⁴⁴ To determine the present value, the member must consider the expected cost of paying the larger share of the liability at some point in the future and discount that expected cost to present value. Expected cost is merely a version of the expected value of an event occurring. This Article uses the terms "expected value" and "expected cost" as appropriate to refer to the potential financial outcome of future events.¹⁴⁵

144. The payment must be adjusted to reflect its value at the time the partner decides to guarantee the nonrecourse liability because the expected value calculation considers the value of the payment at the moment the partner decides to guarantee the liability.

145. The expected value model is appropriate in this scenario despite the criticism it has encountered in the tax compliance context. *See, e.g.,* Michael Doran, *Tax Penalties and Tax Compliance*, 46 HARV. J. ON LEGIS. 111, 124–27 (2009) (explaining that the expected value model, which uses expected value to predict compliance, substantially under predicts taxpayer compliance); Sarah B. Lawsky, *Fairly Random: On Compensating Audited Taxpayers*, 41 CONN. L. REV. 161, 187–88 (2008) (noting that one cannot use the expected value model to explain why taxpayers comply with tax law); Leandra Lederman, *The Interplay Between Norms and Enforcement in Tax Compliance*, 64 OHIO ST. L.J. 1453, 1463, 1467–68 (2003) (noting that economic models of tax compliance fail to capture all factors impacting tax compliance); Eric A. Posner, *Law and Social Norms: The Case of Tax Compliance*, 86 VA. L. REV. 1781, 1783–84 (2000) ("A simple approach to the problem of tax compliance holds that when people decide whether to pay their taxes, they take account only of the cost of the tax and of the expected legal sanction from noncompliance. If the expected sanction exceeds the tax payment, the person will pay; otherwise, he will not. As an example, suppose that a person, P, has earned \$1000 in income that has not been reported to the Internal Revenue Service ("IRS") and has not been subjected to withholding. At a marginal rate of 30 percent, it costs him \$300 to report the income to the IRS and pay the appropriate tax. If P does not report the income, and there is a 1 percent chance that he will be audited and his deception detected, then the proper sanction is a fine of \$30,000 (or an equivalent imprisonment). Considered ex ante, P would comply with the tax law only if he anticipated a sanction of this amount or higher, given the 1 percent probability of detection. . . . Given the low penalty for tax evasion and the audit rate, tax evasion should be widespread. Yet the IRS estimates that 83 percent of taxes are collected." (footnotes omitted)). Unlike tax

The expected value of an event is the probability that the event will occur multiplied by the value of the event.¹⁴⁶ A simple example of a dice-rolling game illustrates the calculation of expected value and how a person may use the expected value to make a financial decision. Assume the rules of the game provide that a player chooses a number on a fair six-sided die. If the player rolls the chosen number, the player wins \$60. Devin is deciding whether to play the game. To play, he must pay \$15 per roll, and he will only play if the expected value of playing is greater than the \$15 cost. The expected value of playing is the probability that he will roll the number he chooses times the potential payout. The probability that he will roll the number he chooses is one in six,¹⁴⁷ and the expected payout is \$60, so the expected value is \$10 ($1/6 \times \60)¹⁴⁸. Because the \$10 expected value is not greater than the \$15 cost, Devin will not play the game.

The expected value analysis must account for the member's risk profile.¹⁴⁹ The analyses in this Article generally assume the parties are risk neutral, like Devin in the dice-game example. Many members of tax partnerships may not, however, be risk neutral.¹⁵⁰ Members of tax partnerships with risk preferences should adjust the model to account for

compliance, the problem in this context is an economic problem. The law clearly provides that the basis of a member's interest in a tax partnership increases if the member's share of the tax partnership's liabilities increase. The member will not be using the expected value model to determine the member's potential tax liability, but rather the model will determine whether the benefit of assuming a larger share of the tax partnership's liability outweighs the expected cost of the assumption. For such an analysis, the expected value model appears to be appropriate. See Christopher C. Fennell & Lee Anne Fennell, *Fear and Greed in Tax Policy: A Qualitative Research Agenda*, 13 WASH. U. J.L. & POL'Y 75, 82 (2003) ("In deciding whether or not to fabricate deductions, many factors could play a role, but on a strict economic analysis we imagine that [the taxpayer] will compare the expected cost of fabricating the deduction (a product of the probability of detection multiplied by the costs of defending himself and paying penalties for this sort of tax evasion) with the expected tax benefit to be derived from the fabrication." (footnote omitted)); Yoram Keinan, *Playing the Audit Lottery: The Role of Penalties in the U.S. Tax Law in the Aftermath of Long Term Capital Holdings v. United States*, 3 BERKELEY BUS. L.J. 381, 384–85, 389–90 (2006) ("[A] taxpayer chooses a level of compliance by weighing the costs and benefits of compliance with those of noncompliance and selecting the level of compliance that will lead to the highest expected level of net benefits. . . . However, with individuals, non-economic considerations may also be involved; while in the case of corporations, the decision whether to enter into a tax-motivated transaction will depend solely on quantitative factors. . . . [N]on-economic considerations, however, are rarely considered by corporations. . . . [T]he elevation of corporate tax departments into profit centers for corporations eliminated most, if not all, qualitative considerations of entering into a tax-motivated transaction." (footnotes omitted)).

146. Sarah B. Lawsky, *Probably? Understanding Tax Law's Uncertainty*, 157 U. PA. L. REV. 1017, 1024 (2009) [hereinafter Lawsky, *Probably?*].

147. The die has six sides. Since the dice is fair, the probability of each event is equal. Hence, the probability of rolling a one, two, three, four, five, or six is one-in-six.

148. Here, the other possible events (i.e., rolling other than the chosen number) are irrelevant because these events do not provide a payout. Hence, the expected value of such an event will be \$0.

149. See Sarah B. Lawsky, *Modeling Uncertainty in Tax Law*, 65 STAN. L. REV. 241, 257–58 (2013).

150. See *id.* at 256.

their preferences. An example of such an adjustment would be to use the natural log function for a member of a tax partnership who is risk averse.¹⁵¹ For example, if Devin is risk neutral, the most he should pay to play the game is \$10 (the expected value of the game). If, however, he is risk averse, he would pay less than \$10 and would have to adjust the model by using the natural log function to determine his price point. When making this adjustment, Devin would take the natural log of the benefit and of the cost, which could put his price point as low as \$1.98.¹⁵²

If risk-averse Devin had to pay \$10 to play the game, then the cost of the game would outweigh the benefit to him.¹⁵³ In fact, the formula suggests that risk-averse Devin would not play the game if it cost him more than \$1.98 to play. Even though this Article generally assumes the members of tax partnerships are risk neutral, members of tax partnerships with different risk profiles may nonetheless use the model it presents if they can make the appropriate adjustments to account for their respective risk profiles. Such adjustments are extremely fact specific and would represent an infinite number of permutations of the model. Hence, the neutral model provides the greatest opportunity for adjustment and presents concepts that could apply to members of tax partnerships who are not risk neutral.

Computing the expected value of a single dice game is fairly straightforward because calculating the probability of the event was simple and the amount of the potential payout was known. The die was fair and had six sides, so the probability of rolling any number on a given roll was one in six. In other situations, computing the probability is very complicated, as would often be the case with respect to predicting whether a tax partnership would default on an obligation. The amount of a member's obligation to pay could also vary greatly depending upon when the obligation arises. The following discussion reviews some tools that Anderson could use to compute the probability that Anderson LLC will default on the liability with respect to which he may choose to accept the risk of loss. To simplify the analysis, it assumes the potential payout remains constant, at \$50,000, in the case of Anderson's assumption of a greater share of Anderson LLC's liabilities.

151. *See id.* at 255. The natural log function "represents a person who has a declining marginal utility. . . . A taxpayer whose utility function has declining marginal utility . . . will act as if he is risk averse." *Id.* But, the use of the natural log function may lead to incorrect results when the values are near zero. For example, if the game used values of \$1 and \$6 instead of \$10 and \$60, then the natural log function would erroneously suggest that a risk-averse player would pay \$1.35 instead of \$1.

152. *See id.* To calculate the price point, we would use the following formula: $\ln(\text{cost to play}) = (\text{probability of winning}) \times \ln(\text{payout})$. Inserting values, we get $\ln(X) = (1/6) \times \ln(60)$. By solving for X , we get $X = 1.98$.

153. *See id.* at 254. The natural log function is $\ln(10) > (1/6) \times \ln(60) = 2.3 > 0.68$.

A. PROBABILITY AND PREDICTING FUTURE EVENTS

A significant component of the calculation of expected cost will be the estimate of the tax partnership's probability of defaulting on the liability of which the member is considering assuming a greater share. There are two different interpretations of the definition of probability,¹⁵⁴ the first being a frequentist interpretation.¹⁵⁵ Under frequentism, the probability reflects the law of large numbers, which provides that over the long run, the probability of an event occurring will converge to its mathematical calculation.¹⁵⁶ For example, under frequentism, the probability of rolling a four on a fair six-sided die would be one in six. If an individual were to conduct an experiment and roll the dice only thirty times, the individual would expect it to land on four five times (thirty rolls multiplied by one-sixth probability of rolling a four). Nonetheless, the dice may land on a four fewer than five times (i.e., the frequency of rolling a four on thirty tries could be less than one in six). Nevertheless, if the individual continues to roll the dice six thousand more times, the number of times the dice lands on a four will average one-sixth of the total number of rolls.

The second interpretation of probability is a subjectivist interpretation.¹⁵⁷ Under subjectivism, the probability "reflects the strength of the speaker's belief that the event will happen."¹⁵⁸ Consider the statement: "The Yankees have a 60 percent chance of winning their next game." This statement represents what the declarant believes to be the likelihood of the Yankees winning their next game.¹⁵⁹ Yankees games are not repeatable events, so the law of large numbers would not apply. An individual would use subjectivism when calculating the probability of such a nonrepeatable event.¹⁶⁰ The law of large numbers will not apply for calculating the probability of a nonrepeatable event because, by definition, this event will only occur once, and the law of large numbers requires the event to occur multiple times in order to calculate the probability. Despite the Yankees' prior performance, their next game is unique and the factors

154. See Lawsky, *Probably?*, *supra* note 146, at 1027–29.

155. See *id.* at 1027. See generally FRANCISCO J. SAMANIEGO, A COMPARISON OF THE BAYESIAN AND FREQUENTIST APPROACHES TO ESTIMATION (2010) (analyzing which approach, Bayesian or frequentist, is preferable in different types of estimation problems, and why).

156. See Lawsky, *Probably?*, *supra* note 146, at 1027; SHELDON M. ROSS, INTRODUCTION TO PROBABILITY MODELS 78 (9th ed. 2009) (explaining that the law of large numbers "states that the average of a sequence of independent random variables . . . will . . . converge to the mean of [its probability] distribution"); CHARLES M. GRINSTEAD & J. LAURIE SNELL, INTRODUCTION TO PROBABILITY 219 (2d ed. 2003) ("The Law of Large Numbers . . . states that . . . if we take the average of independent values of a random variable, then the average approaches a specific number as the number of values increases.").

157. See Lawsky, *Probably?*, *supra* note 146, at 1029.

158. See *id.*

159. See *id.* at 1028.

160. See *id.*

that affected prior performance may not exist to the same extent in the next game.

Nonetheless, data from a large number of past events may inform a subjectivism interpretation of probability. For example, a person generally considers the Yankees' prior performance to state the probability that the Yankees will win their next game. Even though the outcome may differ from the estimate, over time, the Yankees' future winning percentage may be similar to its prior winning percentage. So, to some extent, subjectivism can incorporate some information derived from a large number of prior events.

Predicting the probability that a tax partnership will default on a liability, like predicting the probability that the Yankees will win, is an example of subjectivism. Consequently, a frequentist interpretation cannot predict the probability that a tax partnership will default on an obligation because default on a single liability, like the outcome of a future Yankees' game, is not a repeatable event.¹⁶¹ Numerous factors affect the likelihood of default, such as the tax partnership's current business environment, other obligations that may be coming due, the overall economy, competitive enterprises, and other factors. Because every tax partnership is unique, there are no perfect comparables to use to determine the probability of default. Nonetheless, a significant amount of information about loan default rates is available, for example, from credit rating agencies based upon the credit rating of bonds.¹⁶² In fact, bond ratings represent the rating agency's prediction of the likelihood that a borrower will default.¹⁶³ Figure 3

161. Nonetheless, default can become repeatable with respect to a loan that a creditor restructures following an initial default. Lenders may obtain information about the risk of default and other legal and financial aspects relating to restructured loans. *See, e.g.*, David K. Mangian, Assistant Reg'l Manager, Fed. Deposit Ins. Corp., Presentation at the Chicago Regional Regulatory Teleconference: Troubled Debt Restructurings (Oct. 27, 2011). This Article assumes that Anderson will be obligated for Andper LLC liabilities only if Andper LLC defaults on existing loans a single time. The model could undoubtedly be adopted to account for multiple defaults, but that is a task for a subsequent piece.

162. *See, e.g.*, *Special Comment: Corporate Default and Recovery Rates, 1920–2010*, MOODY'S INVESTORS SERV. (Feb. 28, 2011), [hereinafter *Special Comment*, MOODY'S] (reporting "statistics on the default, loss, and rating transition experience of corporate bond and loan issuers").

163. Moody's uses the following ratings:

- Aaa Obligations rated *Aaa* are judged to be of the highest quality, with minimal credit risk.
- Aa Obligations rated *Aa* are judged to be of high quality and are subject to very low credit risk.
- A Obligations rated *A* are considered upper-medium grade and are subject to low credit risk.
- Baa Obligations rated *Baa* are subject to moderate credit risk. They are considered medium grade and as such may possess certain speculative characteristics.

illustrates the default rates of a large number of bonds based upon the credit rating of the bond.¹⁶⁴

Year	Rating							
	Aaa	A	Baa	B	Caa-C	Inv Grade	Spec Grade	All rated
2000	0.00	0.00	0.39	6.03	19.55	0.14	6.37	2.62
2001	0.00	0.17	0.20	9.57	31.90	0.14	10.33	3.98
2002	0.00	0.17	1.10	4.53	28.86	0.46	8.06	3.06
2003	0.00	0.00	0.00	2.11	22.39	0.00	5.37	1.84
2004	0.00	0.00	0.00	0.84	12.29	0.00	2.45	0.86
2005	0.00	0.00	0.18	1.03	6.67	0.07	1.75	0.67
2006	0.00	0.00	0.00	1.18	6.04	0.00	1.76	0.65
2007	0.00	0.00	0.00	0.00	5.98	0.00	0.96	0.37
2008	0.00	0.46	0.47	2.07	14.78	0.46	4.37	2.03
2009	0.00	0.18	0.86	7.41	34.36	0.37	13.14	5.42
2010	0.00	0.19	0.00	0.48	12.01	0.07	3.17	1.28
Mean	0.00	0.10	0.27	3.41	13.86	0.15	2.78	1.15
Median	0.00	0.00	0.00	2.05	8.31	0.00	1.76	0.70
St Dev	0.00	0.26	0.46	4.04	17.05	0.28	3.10	1.42
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Max	0.00	1.72	1.99	19.72	100.00	1.58	15.39	8.42

- Ba Obligations rated *Ba* are judged to have speculative elements and are subject to substantial credit risk.
- B Obligations rated *B* are considered speculative and are subject to high credit risk.
- Caa Obligations rated *Caa* are judged to be of poor standing and are subject to very high credit risk.
- Ca Obligations rated *Ca* are highly speculative and are likely in, or very near, default, with some prospect of recovery of principal and interest.
- C Obligations rated *C* are the lowest rated class of bonds and are typically in default, with little prospect for recovery of principal or interest.

Moody's Rating Symbols & Definitions, MOODY'S INVESTORS SERV., 8 (June 2009), <http://www.moodys.com/sites/products/AboutMoodyRatingsAttachments/MoodysRatingsSymbolsand%20Definitions.pdf>. Also, it should be noted that the mean represents the average for the years of 1920 through 2010 instead of just 2000 through 2010.

164. *Special Comment*, MOODY'S, *supra* note 162, at 29 exhibit 31.

This table illustrates that the default rates for highly rated bonds are much lower than the default rates for lower rated bonds. The results suggest that even though credit rating agencies cannot use frequentist probability to predict default rates, they appear to fairly accurately predict default probability under a subjectivist viewpoint. By rating a bond, they predict the probability of default, and the default rates are low for highly rated bonds and higher for lower rated bonds. Although the correlation between rating and default does not appear to be perfect, it is apparent. The apparent correlation suggests that a member of a tax partnership could reasonably predict the probability that a tax partnership will default on the liability. A member of a tax partnership should have knowledge of the tax partnership that is sufficient to estimate the probability of default in each year or to place the tax partnership within one of the ratings designations. For example, Anderson may determine that Andper LLC's liability is similar to a B-rated bond. If so, Anderson might use a cumulative table of default rates to help him estimate the probability that Andper LLC will default. Figure 4 provides cumulative default rates based upon issuer ratings for the twenty-five years or so leading up to 2010.¹⁶⁵

Rating	Year						
	1	2	3	4	5	...	10
Aaa	0.00	0.02	0.02	0.05	0.09	...	0.19
Aa	0.02	0.07	0.12	0.20	0.29	...	0.50
A	0.06	0.20	0.41	0.62	0.85	...	2.22
Baa	0.20	0.56	1.00	1.50	2.06	...	4.89
Ba	1.20	3.44	6.18	9.07	11.51	...	21.34
B	4.47	10.52	16.53	21.77	26.52	...	45.19
Caa	15.53	27.59	37.25	45.15	51.80	...	73.04
Ca-C	38.74	50.58	59.68	66.35	71.65	...	78.88
Inv Grade	0.10	0.27	0.51	0.77	1.05	...	2.47
Spec Grade	4.94	10.20	15.23	19.67	23.48	...	39.97
All rated	1.82	3.72	5.49	6.99	8.24	...	12.34

Despite the historical information about a large number of loans, the historical information does not predict future default rates of large numbers of loans or for any single liability. This phenomenon is illustrated by the 2008 financial crisis during which default rates on home loans spiked to 9.4

165. See *id.* at 33 exhibit 35.

percent in 2009, which is more than double the rate from 2006.¹⁶⁶ Historical information did not take into account the financial crisis, increased unemployment rate, and other events that converged to cause the crisis. Consequently, historical information was inadequate to predict the financial crisis and uptick in loan defaults. The financial crisis illustrates that a systemic event can change the rate of default of loans despite historic data.¹⁶⁷ The table of cumulative default rates would not give proper weight to a financial crisis, especially if the cumulative rates are based upon several years of data that did not include an event similar to the financial crisis.

The financial crisis also illustrates how external factors differentiate subjectivist probability from frequentist probability associated with die rolling where external factors do not exist or do not affect the probability of rolling a particular number using a fair dice. Furthermore, even though the historic default rate of a particular type of loan and a particular borrower profile may generally predict the likelihood that a single borrower with similar attributes will default, each borrower is unique and operates in a unique sphere. The uniqueness means that the probability of default for any single borrower could be significantly different for any single borrower within a particular category.

Anderson must take all of these factors into account when performing an expected cost analysis of assuming a greater share of Andper LLC's liabilities. He can use the general information in the tables above about default rates to assess the subjectivist probability that the tax partnership will default. The historic information suggests that if the tax partnership is financially stable, the probability that it would default on a liability would appear to be very low. In fact, a high probability of default appears to be the rare situation. Nonetheless, the information does not account for Andper LLC's unique situation. Members of tax partnerships, such as Anderson, generally have access to information about their tax partnership's unique situation, so they will often have a good understanding of the factors that would affect the probability of default.

In the age of "Big Data," more and more information becomes available every single day.¹⁶⁸ In fact, Nate Silver has obtained notoriety by helping people understand that all available information is not useful information;

166. See U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2012, at 743 tbl.1194 (2012).

167. See Mark J. Flannery et. al., *Credit Default Swap Spreads as Viable Substitutes for Credit Ratings*, 158 U. PA. L. REV. 2085, 2092 (2010) ("Ultimately, tens of thousands of highly structured financial instruments were downgraded in 2007 and 2008, shortly after their initial rating."); see also *supra* Figure 3 (showing a spike in default rates following 2007, which were considerably higher than the median and mean default rates).

168. See NATE SILVER, *THE SIGNAL AND THE NOISE: WHY SO MANY PREDICTIONS FAIL BUT SOME DON'T* 9 (2012) ("IBM estimates that we are generating 2.5 quintillion bytes of data each day.").

rather, most of it is just noise.¹⁶⁹ As a result, members of tax partnerships will encounter the challenge of sorting through this information in order to decipher which information is useful and which is not. The accuracy of a forecast of a member of a tax partnership is dependent upon the member's ability to minimize the amount of noise contained within the member's information set.¹⁷⁰ Although minimizing the amount of noise may appear to be simple on first blush, it is often a very difficult undertaking.¹⁷¹

In addition to separating the signal from the noise, members of a tax partnership face additional challenges attempting to accurately calculate the probability that the tax partnership will default. One such challenge is accurately interpreting information. When processing information, a person must remember that “the numbers have no way for speaking for themselves[,] . . . [so the person] imbue[s] them with meaning.”¹⁷² The risk is that the person “may construe them in self-serving ways.”¹⁷³ To overcome this risk, members of a tax partnership must exert deliberate effort to interpret information to match the data's objective reality. The second challenge is ignoring a present risk. “Human beings have an extraordinary capacity to ignore risks that threaten their livelihood.”¹⁷⁴ By ignoring such a risk, the calculation of a tax partnership's probability of default would likely be lower than the actual probability.

In estimating the probability of a future event occurring, a person must recognize that ignoring information and excluding information are two separate concepts.¹⁷⁵ A person excludes information after considering it and

169. *See id.* at 13 (“Meanwhile, if the quantity of information is increasing by 2.5 quintillion bytes per day, the amount of *useful* information almost certainly isn't. Most of it is just noise, and the noise is increasing faster than the signal.”). “Noise” and “signal” are two terms that Nate Silver often uses. *Id. passim*. Noise refers to information that is not useful in predicting outcomes and information that does not correlate to what a person is trying to predict. *See, e.g., Nat'l Distillers Prods. Co. v. Refreshment Brands, Inc.*, 198 F. Supp. 2d 474, 483 (S.D.N.Y. 2002); *see also* SILVER, *supra* note 168 *passim*. Conversely, signal refers to information that is useful in predicting; so such a correlation does exist. *See id.*

170. An example of this risk is found during the 1970s and 1980s, where there was an increase in information but there was a temporary decline in economic and scientific productivity. *See* SILVER, *supra* note 168, at 7. Nate Silver suggests that a possible explanation for this decline was that individuals were “seeing signals in the noise and wasting [their] time on false leads.” *See id.* at 7–8.

171. For example, forecasting earthquakes is a field where noise has consistently been mistaken as a signal. As a result, there has not been much progress in the ability to predict earthquakes. *See id.* at 11, 142–75 (discussing earthquake data).

172. *See id.* at 9.

173. *See id.*

174. *See id.* at 25.

175. *See id.* at 388 (“The goal of any predictive model is to capture as much signal as possible and as little noise as possible. Striking the right balance is not always so easy, and our ability to do so will be dictated by the strength of the theory and the quality and quantity of the data.”); *id.* at 191 (“A forecaster should almost never ignore data. . . . Ignoring data is often a tip-off that the forecaster is overconfident, or is overfitting the model—that she is interested in showing off rather than trying to be accurate.”).

deciding that it has no correlation to the outcome. Such information is noise and not a signal. Conversely, a person ignores information by never considering it. Such information could be signal, or it could be noise, but without considering the information, a person cannot make that distinction. Ignoring information may exclude the signal, which would otherwise affect a prediction, so ignoring information is not good.

Biological instincts have been found to hinder human beings' ability to accurately predict the likelihood of an outcome.¹⁷⁶ A person can nonetheless overcome human shortfalls to some extent through group forecasting.¹⁷⁷ By taking the average of a group of independent forecasts, a person can help reduce the error contained within each individual forecast.¹⁷⁸ Although an average may not be more accurate than the best individual forecast,¹⁷⁹ an average is better than almost all of the other individual forecasts, and identifying the best individual forecast may prove to be too difficult. To gain an advantage by grouping, one must only include independent forecasts.¹⁸⁰ A tax partnership with several members could therefore take the average probability estimates of all members to help increase the accuracy of the predictions.

If a tax partnership has attributes that are similar to borrowers for which large amounts of information is available regarding default rates, the members of the tax partnership could use that information to help determine the subjective probability of default for particular liabilities. That information would be helpful only if the members believe the tax partnership fits nicely within the profile of similar borrowers for which historic default rates are available. For tax partnerships that do not necessarily fit nicely into a particular profile, a member who might be considering assuming a larger share of liability could use other tools to determine the probability of default.

In addition to disciplined thought that distinguishes signal from noise, numerous tools are at a member's disposal to help determine the probability that the member will be obligated to make a payment on a larger share of a tax partnership's liabilities. Those tools include the weighted average value of a random variable, the Multiplication Rule, and conditional probability. After discussing these various tools, the analysis illustrates how members of tax partnerships may combine these tools to create a model for estimating

176. *See id.* at 12–13.

177. *See id.* at 335.

178. *See id.*

179. *See id.*

180. *See id.* at 384 (“Empirical studies of consensus-driven predictions have found mixed results, in contrast to a process wherein individual members of a group submit independent forecasts and those are averaged or aggregated together, which can almost always be counted on to improve predictive accuracy.” (footnote omitted)). Silver suggests that this result might be because “[s]ome members of a group may be more influential because of their charisma or status and not necessarily because they have the better idea.” *Id.*

the expected cost of assuming a larger share of a tax partnership's liabilities.

1. Weighted Average Value of a Random Variable

Expected value often reflects the weighted mean value of a random variable.¹⁸¹ An example of a different dice game helps illustrate the use of a weighted value of a random variable. In this example, Bianca, a risk-neutral person, is considering whether to play the die game. If Bianca pays to play the game, she will win a dollar amount equal to the number she rolls on a fair, six-sided die. For example, if she rolls a one, she wins \$1, if she rolls a two, she wins \$2, and so forth, up to six, which would pay her \$6 if she rolled it. The expected value of a single roll of the die must account for the various probabilities of the single roll and the amount that the single roll will pay out based upon the number Bianca rolls. To compute the weighted average value of a single roll of the die, Bianca must identify the random variable and the probability distribution of the variable.

A random variable is “a variable which takes values in a certain range with probabilities specified by a probability distribution.”¹⁸² The random variable in this die game is the dollar amount Bianca will win based upon the number that appears on the die on a single roll. There are two kinds of random variables: discrete and continuous.¹⁸³ A discrete random variable is “a variable which may take only certain discrete values.”¹⁸⁴ In other words, “[a]ny random variable that has only a finite number of values is necessarily discrete.”¹⁸⁵ A continuous random variable is a “random variable whose set of possible values is uncountable.”¹⁸⁶ The random variable in this die game is a discrete random variable because the random variable's values are limited to six possible outcomes: \$1, \$2, \$3, \$4, \$5, or \$6. Thus, the discrete random variable is the value associated with each number on the die.

A probability distribution¹⁸⁷ is “the distribution of the probabilities of the different values of a discrete random variable.”¹⁸⁸ In other words, a probability distribution accounts for the probability of each possible event

181. See ROSS, *supra* note 156, at 38–39 (“[T]he expected value of [a discrete random variable] is a weighted average of the possible values that [the discrete random variable] can take on, each value being weighted by the probability that [the discrete random variable] assumes that value.”).

182. *Id.* at 182.

183. See ROSS, *supra* note 156, at 26.

184. ROGER PORKESS, *THE HARPER COLLINS DICTIONARY OF STATISTICS* 66 (Eugene Ehrlich 1991).

185. ROBERT C. JAMES & GLENN JAMES, *MATHEMATICS DICTIONARY* 319 (4th ed. 1976).

186. ROSS, *supra* note 156, at 34.

187. The technical term for a discrete random variable's probability distribution is the probability mass function. But, for the purposes of this Article, we will only be dealing with discrete random variables. Thus, we will refer to the probability mass function by the more general term probability distribution. See ROSS, *supra* note 156, at 27–28, 43.

188. PORKESS, *supra* note 184, at 176.

occurring. In our hypothetical game, there are six possible outcomes. Assuming Bianca is rolling a fair die, each event (i.e., number on the die) has a one-sixth chance of occurring, so the probability distribution must account for each of these possibilities. Figure 5 illustrates the probability distribution for the hypothetical game with Bianca, which Bianca will use to compute the expected value of a single roll of the die:

Figure 5: Probability Distribution of Rolling a Fair Six-Sided Die						
Event (number rolled)	1	2	3	4	5	6
Random Variable (winning amount)	\$1.00	\$2.00	\$3.00	\$4.00	\$5.00	\$6.00
Probability of Event	1/6	1/6	1/6	1/6	1/6	1/6
Expected Value of Event	\$0.17	\$0.33	\$0.5	\$0.67	\$0.83	\$1.00

Bianca has an equal chance to roll any of the six numbers on the die, as reflected in the probability distribution. The value of a single roll must, in effect, average the expected value of rolling each of the separate numbers. Since the dollar amount associated with each number (i.e., the random variable) is discrete, Equation 1 presents the expected value formula that Bianca can use to determine the expected value of a single roll of the die:

$$(1) \quad \sum = X_i \times P(X_i)$$

In this equation, X_i represents the random variable, and $P(X_i)$ represents the probability that any single random variable will occur. For Bianca, X_1 represents the \$1 random variable and $P(X_1)$ represents the one-sixth probability of the \$1 random variable occurring; X_2 represents the \$2 random variable and $P(X_2)$ represents the one-sixth probability of the \$2 random variable occurring; and so forth. Based upon the expected value formula, the expected value of this die game would be \$3.50, computed as follows: $(\$1)(1/6) + (\$2)(1/6) + (\$3)(1/6) + (\$4)(1/6) + (\$5)(1/6) + (\$6)(1/6) = \$3.50$.

The \$3.50 represents how much Bianca can expect to win on average if she played the game a large number of times. Consequently, it is also what she can reasonably expect to win if she rolls the die just one time—it is the expected value of a single roll of the die in this game. Assuming Bianca is risk neutral, she would pay no more to play than the \$3.50 she expects to win. She would therefore play the game only if she could play for \$3.50 or any amount less than that.

When considering whether to assume a larger share of a tax-partnership liability, members of a tax partnership generally must consider the probability that a tax partnership will default on the liability in any of the remaining years of a liability. By listing and assigning a probability value for each possible event, a member can create a probability distribution. Using that probability distribution, the member can apply the expected value formula to determine the expected cost of assuming a larger share of the tax partnership's liabilities. Nonetheless, computing the tax partnership's probability of defaulting in any given period during which the liability is outstanding is more complicated than computing the probability that Bianca will roll a particular number on a die. A member of a tax partnership will most likely have to employ the Multiplication Rule, and address the conditional probability of default in each successive period to apply the expected value formula.

2. Multiplication Rule

The expected value formula, as discussed to this point, uses probability to estimate the value or cost of a single event. In the case of rolling a die, the event is the roll of the die. If more than one event must occur to compute expected value, the probability calculation becomes more complex. For instance, if a die game required the player to roll the same number twice in two consecutive rolls of the die to win, the probability of winning must account for the probability of rolling the number on the first attempt and the probability of rolling the same number on the second attempt.

The example of the die game Devin contemplated playing illustrates the application of the Multiplication Rule. Assume that the rules of the game provide that a player will win \$3.60 if the player selects a number and rolls the number on two consecutive rolls of the die. To compute the expected value of winning, Devin must first compute the probability of winning and then multiply that amount by the \$3.60 he would receive for winning. The probability of rolling a particular number on the first try is one in six, and the probability of rolling the same number on the second try is also one in six.¹⁸⁹ The Multiplication Rule provides that the probability of rolling the same number on each try is the probability of rolling the number on the first try multiplied by the probability of rolling the number on the second try.¹⁹⁰ Thus, the probability that Devin will win (i.e., roll the same number on two consecutive rolls of the die) is $1/36$ ($1/6 \times 1/6$). The expected value of the game is $1/36$ multiplied by the \$3.60 payout to winners, or \$0.10. Assuming

189. The discussion below describes why these two events are independent and the outcome of the first event does not affect the outcome of subsequent events. See *infra* text accompanying notes 191–92.

190. This is assuming we are dealing with independent events, which is the case when dealing with multiple die rolls. See PORKESS, *supra* note 184, at 141 (defining the Multiplication Rule).

Devin is risk neutral, he would only play this game if it cost \$0.10 or less to play.

Equation 2 presents the Multiplication Rule formulaically.

(2)

$$P(X \cap Y) = P(X) \times P(Y)$$

In this equation, $P(X \cap Y)$ is the probability that both X and Y will occur. Applied to the die game,

X would represent rolling a three on the first roll of the die and Y would represent rolling a three on the second roll of the die. The remaining variables $P(X)$ and $P(Y)$ are the probabilities that event X and event Y will occur, respectively. Thus $P(X)$ is the 1/6 probability that Devin will roll a three on his first attempt, and $P(Y)$ is the 1/6 probability that he will roll a three on his second attempt. Thus, $P(X \cap Y)$ for Devin is 1/6 x 1/6 or 1/36.

The Multiplication Rule is not limited to two events. Rather, it can be used for an infinite number of events. For example, if there are three events (X , Y , and Z), then the Multiplication Rule could determine the probability of all three events occurring as presented in Equation 3:

(3)

$$P(X \cap Y \cap Z) = P(X) \times P(Y) \times P(Z)$$

This application of the Multiplication Rule assumes that events X , Y , and Z are independent events. If two events are not independent, computing the probability of both events occurring becomes more complicated. Nonetheless, if the probability of a subsequent event depends upon the probability of a prior event, the person must apply principles of conditional probability to determine the probability of the second event.

3. Conditional Probability

To calculate the conditional probability, a person must distinguish between dependent and independent events. The terms “dependent” and “independent” describe the relationship between the future event (the event for which the probability is being calculated) and the given event (the event that has already occurred).¹⁹¹ The discussion to this point has considered the probability that independent events will occur. A future event is independent if the given event has no effect on the probability of the occurrence of the future event.¹⁹² For example, rolling a particular number on a fair die is an independent event. No matter how many times a person has rolled the die or rolled a particular number, the outcome of those prior rolls of the die does not affect the probability of rolling a particular number on the next roll.

191. *See id.* at 110.

192. *See* JAMES & JAMES, *supra* note 185, at 143. Additionally, if the future event is independent of the given event, then the given event must be independent of the future event. *See* PORKESS, *supra* note 184, at 110.

As can be expected, however, two or more events are often not independent. A future event is a dependent event if the prior event affects the probability of the future event.¹⁹³ The expected value computation for purposes of dependent events must use conditional probability calculations.¹⁹⁴ Conditional probability is “the probability . . . of an event occurring, given that another event has already occurred.”¹⁹⁵

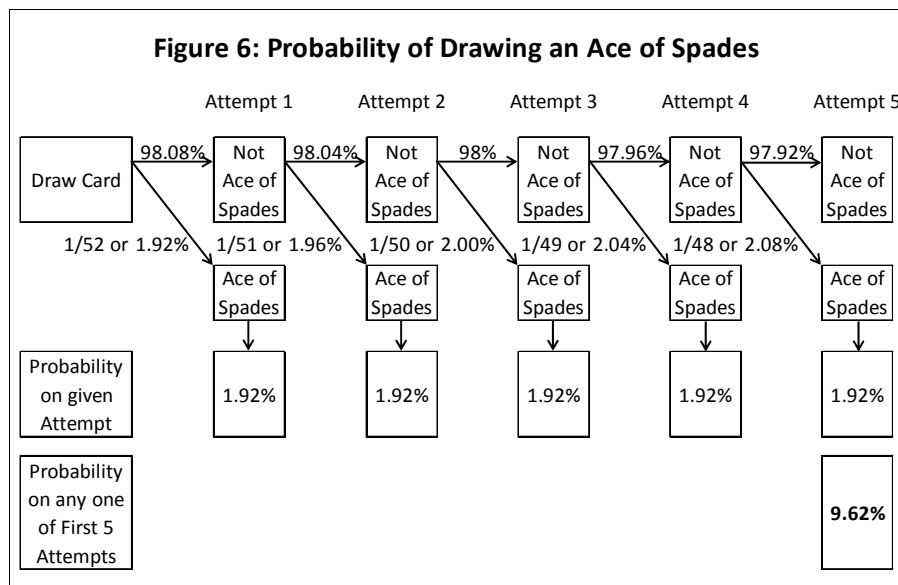
The following example illustrates how a dependent event creates conditional probability. Francine wishes to know the probability of drawing an ace of spades out of a standard fifty-two-card deck. The deck of cards has one ace of spades, so the probability that Francine will draw an ace on her first attempt is 1/52. The probability of drawing the ace of spades on a second attempt depends upon the result of Francine’s first attempt. Following her first attempt, the deck will have 51 cards. Assuming Francine did not draw an ace of spades on her first attempt, it will be one of the remaining 51 cards in the deck. Consequently, the probability that she will draw an ace of spades on her second attempt, given she did not draw it on her first attempt, would be 1/51.

If Francine draws the ace of spades on her first attempt, it will not be one of the 51 cards remaining in the deck that are available for the second attempt. Consequently, the probability of Francine drawing the ace of spades on her second attempt, given that she drew it on her first attempt would be 0/51 or zero percent. In this simple example the result of the first attempt (the given event) affects the probability of the second attempt (the future event). Therefore, the probability of the second attempt is dependent upon the first attempt, and the probability of drawing an ace on the second attempt is an example of conditional probability. A probability tree, as presented in Figure 6, illustrates how Francine could determine the probability that she will draw an ace of spades on each of five attempts.

193. See JAMES & JAMES, *supra* note 185, at 143.

194. If events are independent, then, pursuant to the Multiplication Rule, the probability of all events occurring is calculated by simply multiplying the probabilities of each of the events occurring. See PORKESS, *supra* note 184, at 141 (defining the Multiplication Rule). However, if events are dependent, then conditional probability must be used to calculate the probability of all events occurring. For example, flips of a coin are independent events. Hence, the probability of the coin landing on heads and then tails is equal to (Probability of Heads) \times (Probability of Tails). In contrast, determining the probability of drawing the ace of clubs and then the king of spades, assuming that the first drawn card is not replaced back into the deck, involves applying conditional probability because these events are dependent events. The probability would be: (Probability of Ace of Clubs) \times (Probability of King of Spades given that the Ace of Clubs was drawn).

195. PORKESS, *supra* note 184, at 43.



The probability tree illustrates the conditional probability that Francine will draw an ace of spades on any of five given attempts. The Multiplication Rule can help determine the probability that she will draw an ace of spades on any particular one of those five attempts and will help determine the probability of drawing an ace of spades in at least one of the five attempts. For example, Francine could use the Multiplication Rule to determine the probability that she will draw an ace of spades on her second attempt. As stated above, if Francine draws an ace of spades on her first attempt, the probability that she will draw an ace of spades on her second attempt is zero. If she does not draw the ace of spades on her first attempt, the conditional probability of drawing the ace of spades on her second attempt is $1/51$.

For Francine to draw the ace of spades on her second attempt, however, two events must occur: (1) she must not draw an ace of spades on her first attempt and (2) must draw an ace of spades on her second attempt. Because two events must occur for Francine to draw the ace of spades on her second attempt, she should use the Multiplication Rule to determine the probability of drawing the ace of spades on her second attempt. She would do that by multiplying the probability of not drawing the ace of spades on her first attempt ($51/52$) by the probability of drawing the ace of spades on her second attempt ($1/51$). The probability of drawing the ace of spades on her second attempt would therefore be $1/52$ or approximately 1.92 percent. The probability of drawing an ace of spades on the third attempt would be the probability of not drawing the ace of spades on the first attempt multiplied by the probability of not drawing the ace of spades on the second attempt

multiplied by the conditional probability of drawing the ace of spades on the third attempt.

Francine can use the information about the probability of drawing the ace of spades in any one particular attempt to determine the probability that she will draw the ace of spades in at least one of her first five attempts. The probability of drawing the ace of spades in at least one of the first five attempts is merely the sum of the probabilities of drawing the ace in any one of the first five attempts. To illustrate this concept with a simple example, the probability that Francine will draw the ace of spades in at least one of her first two attempts is the probability that she will draw the ace of spades on her first attempt, plus the probability that she will draw it on her second attempt, $1/52 + 1/52$,¹⁹⁶ which equals $1/26$ or approximately 3.85 percent. Figure 7 illustrates the computation of the probability of drawing the ace of spades on any particular one of the first five attempts and the probability of drawing the ace of spades in at least one of her first five attempts.¹⁹⁷

Attempt	1	2	3	4	5	Total
Cards Prior to Attempt	52	51	50	49	48	n/a
Cards Drawn Per Attempt	1	1	1	1	1	5
Conditional Probability of Drawing Ace of Spades on Attempt	1.92%	1.96%	2.00%	2.04%	2.08%	n/a
Probability of Drawing Ace of Spades on Attempt	1.92%	1.92%	1.92%	1.92%	1.92%	9.62%

Conditional probability is stated formulaically as $P(Y/X)$, which means the probability of Y occurring given that X has occurred.¹⁹⁸ If $P(Y/X) = P(Y)$ in all events, then Y is an independent variable because Y 's probability does

196. The conditional probability for the second year is $1/52$, which represents the $51/52$ probability of not drawing the ace of spades in the first year and the $1/51$ probability of drawing the ace of spades in the second year.

197. Notice that with the card-game hypothetical, the probability of drawing the ace of spades on a given attempt is $1/52$. This is somewhat intuitive because a person drawing the cards would have an equal chance of drawing an ace of spades on each of fifty-two attempts that it would take to draw all of the cards.

198. See ROSS, *supra* note 156, at 7; see also GRINSTEAD & SNELL, *supra* note 156, at 133.

not depend upon the probability of X .¹⁹⁹ The die games illustrated this concept. No matter what a play had rolled prior to the current attempt, the probability of rolling any given number was $1/6$, and did not depend on the prior roll. If, however, an event is dependent, then the probability of the event must be calculated in consideration of what happened with respect to the prior event. Thus, if Y is dependent upon X , $P(Y/X) \neq P(Y)$. For instance, the probability of Francine drawing an ace of spades on her second attempt would be $1/51$, if she had not drawn an ace of spades on her first attempt, or it would be $0/51$, if she had. The Multiplication Rule and conditional probability provide the basis for computing the probability that a tax partnership will default in any one particular year.

B. COMPUTING THE PROBABILITY OF TAX-PARTNERSHIP DEFAULT

In calculating the expected cost of assuming a greater share of the tax partnership's liability, a member of a tax partnership can use a version of the formula for weighted average value of a random variable illustrated in the Bianca example above.²⁰⁰ The random variable would represent how much the partner would have to pay if the partnership defaulted on its liability in a particular time period. This random variable is a discrete random variable because it has a finite number of values: either \$0, which represents the outcome if the partnership does not default, or the amount of the member's possible payment at a given point in time. For the sake of simplicity, this discussion assumes the tax partnership will only default at the end of any year during which the partner is exposed to the additional risk of loss and that the amount of the liability will remain constant. If Anderson assumed an additional \$50,000 share of Andper LLC's liability, he would only have to pay the amount once at the end of one of the succeeding five years if Andper LLC defaulted. After the fifth year, Andper LLC would make sufficient income to pay off the liability and increase Anderson's basis in his Andper LLC interest sufficiently to not result in any constructive distributions. Thus, the random variables would consist of six values: \$0, which represents the tax partnership not defaulting, and the \$50,000 that Anderson could pay at the end of the first, second, third, fourth, or fifth year. Additionally, a probability distribution consists of the probability of each possible event occurring.²⁰¹ Hence, the probability distribution, in this scenario, would consist of the probability of the partnership defaulting in Year 1, the probability of the partnership defaulting in Year 2, and so forth. Because Anderson knows the random variables, he is left to determine the probabilities, so he can complete a probability distribution for the five years.

199. See ROSS, *supra* note 156, at 10; see also GRINSTEAD & SNELL, *supra* note 156, at 139.

200. See *supra* text accompanying notes 182–89.

201. See *supra* text accompanying notes 187–88.

The Multiplication Rule would help Anderson calculate the probability that he will have to pay the \$50,000 of liability in the second year. The probability that Anderson will pay in the second year is conditional on whether Anderson pays in the first year. If Andper LLC defaults in the first year, the probability of Anderson paying in the second year would be zero. If Andper LLC does not default in the first year, the probability of Anderson paying in the second year must comprehend the probability of him not paying in the first year. The probability of not paying in the first year equals one minus the probability of paying in the first year.²⁰² To compute the probability of paying in the second year, Anderson must determine the conditional probability of paying in the second year. For Anderson to pay in the second year, two events must occur: (1) Anderson must not pay in the first year, and (2) Anderson must pay in the second year. Because both events must occur, Anderson should use the Multiplication Rule, to determine the probability that he will pay in the second year. Assuming Anderson only pays if Andper LLC defaults on the liability, the Equation 4 represents the probability that Anderson will pay in the second year.

$$(4) \quad P(D_2) = P(N_1 \cap C_2) = P(N_1) \times P(C_2)$$

In this equation, D_2 represents the probability that the tax partnership will default in the second year, C_2 represents the partnership defaulting in the second year given that it does not default in the first year, and N_1 represents the partnership not defaulting in the first year. Because a member would generally only pay a liability if the tax partnership were to default, the analysis equates tax-partnership default to paying and no tax-partnership default to not paying.

A member of a tax partnership who is calculating the probability of tax-partnership default for the third year must multiply the conditional probability of tax-partnership default in the third year by the probability of no tax-partnership default in the second year and by the probability of no tax-partnership default in the first year.²⁰³ Following this theme, the default probability for any given year can be calculated by multiplying the

202. A principle in probability is that the probability of all possible events occurring equals 1 (or 100 percent, if measured in percentages). ROSS, *supra* note 156, at 4. See also *id.* at 1 (“[The] set of all possible outcomes of any experiment is known as the *sample space*.”). So, in this case, there are two possible events: (1) payment in Year 1 (D_1), and (2) no payment in Year 1 (N_1). Thus, $P(D_1) + P(N_1) = 1$. Therefore, by subtracting $P(D_1)$ from both sides the following equation emerges, $P(N_1) = 1 - P(D_1)$.

203. Assume that D_3 represents the event that the partnership defaults in the third year; N_2 represents the event that the partnership does not default in the second year given that it does not default in the first year; N_1 represents the event that the partnership does not default in the first year; and C_3 represents the event that the tax partnership defaults in the third year, given that it has not defaulted in the first or second year. Based upon those the assumptions, the following equation would provide the probability that the tax partnership would default in the third year: $P(D_3) = P(N_1 \cap N_2 \cap C_3) = P(N_1) \times P(N_2) \times P(C_3) = P(N_1) \times P(N_2) \times P(C_3)$.

conditional probability of tax-partnership default for that year by the probability of no tax-partnership default for each prior year. Thus, the probability of tax-partnership default, and therefore member payment, in any given year can be stated formulaically as presented in Equation 5.

(5)

$$P(D_n) = P(N_1 \cap N_2 \cap \dots \cap N_{(n-1)} \cap C_n) = P(N_1) \times P(N_2) \times \dots \times P(N_{(n-1)}) \times P(C_n)$$

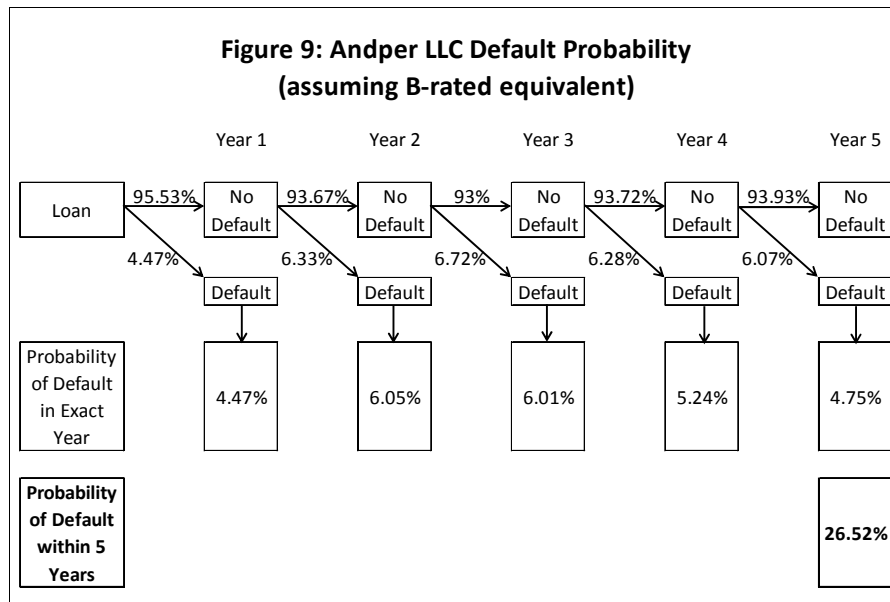
In this equation, D_n represents the probability that the tax partnership will default in the n^{th} year; C represents the probability of tax-partnership default in a given year, given no default in prior years (i.e., the conditional probability of default); and N represents the probability of no tax-partnership default in a given year. In all but the first year, N will be the probability of no tax-partnership default, given that the tax partnership has not defaulted in prior years.

A probability tree can help calculate the probability of tax-partnership default for any given year during which the member of a tax partnership would be exposed to risk of loss with respect to a tax-partnership liability. The member would create the diagram by listing the event for that given point in time, and assigning the probability of each event occurring in that given time period. Except for the first year, the probabilities on the diagram would be the conditional probabilities for that year. A member may choose to use a table of cumulative default rates, such as the one in Figure 4 above, to determine the conditional probability of defaulting in particular years. The member could not, however, simply use the values in the table. Instead, the member must convert them to conditional probabilities of defaulting in particular years and probabilities of not defaulting.

To illustrate, assume that the table represents the cumulative probability that one hundred issuers will default on loans. If one hundred issuers borrowed money and they would default randomly in accordance with the numbers in Figure 4, approximately four of the B-rated issuers would default in Year 1. In Year 2, another six people would default (the cumulative total of ten defaulting issuers in Year 2 minus the four who defaulted in Year 1). The default probability for Year 1 would be 4 percent because four of the one hundred issuers would default. The conditional default probability in Year 2 would include the number of people who would default in Year 2 given that they did not default in Year 1. The probability of no default in Year 1 would equal the one hundred total issuers minus the four issuers who defaulted in Year 1. Consequently, the conditional probability of default in Year 2 would equal the six issuers who will default in Year 2 divided by the ninety-four issuers who did not default in Year 1, or 6.25 percent. Using values from Figure 8 for B-rated issuers, a member could compute the following conditional probabilities for each of Years 1 through 5.

Figure 8: Probability of Default (assuming B-rated equivalent)							
	Year 1	Year 2	Year 3	Year 4	Year 5	...	Year 10
Undefaulted Loans at Beginning of Year	100.00	95.53	89.48	83.47	78.23	...	57.69
Cumulative Default Rate	4.47%	10.52%	16.53%	21.77%	26.52%	...	45.19%
Number of Loans Defaulted (per year)	4.47	6.05	6.01	5.24	4.75	...	2.88
Conditional Probability of Default	4.47%	6.33%	6.72%	6.28%	6.07%	...	4.99%
Probability of Default	4.47%	6.05%	6.01%	5.24%	4.75%	...	2.88%

Assume that Anderson decides that the information in this table most accurately reflects his understanding of the conditional probability that Andper LLC will default during the first five years after he assumes the additional \$50,000 share of its liabilities. Anderson could use this information to calculate the probability that Andper LLC will default in any of the first five years after the assumption. To calculate the probability of defaulting in a given year, Anderson could create a probability tree and trace the path from the start point to the point that represents the default for which he is determining the probability. For example, if Anderson was trying to calculate the default probability for the third year, he would trace a path from the start point through the point representing no default in the first year and then through the point representing no default in the second year and end on the point representing default in the third year. After he traces the path, he would multiply each probability that lies within the path. Figure 9 illustrates the application of this process.



To compute the expected cost of paying the increased share of the liability, the member would multiply the amount of the payment to be made in a particular year by the probability of making that payment. To illustrate, if Andper LLC defaulted on \$50,000 that represented Anderson's increased share of Andper LLC's liabilities, Anderson would owe \$50,000. If Anderson determined that the probability of making that payment in the first year was 4.47 percent, the expected cost for the first year would be \$2,235. Assuming that Andper LLC does not default in the first year, Anderson would have to pay \$50,000 if it defaulted in the second year. As the probability tree indicates, the probability of defaulting in the second year is 6.05 percent. The expected cost is therefore \$50,000 multiplied by 6.05 percent, or \$3,025.

Once Anderson determines the probabilities of default in this manner, he can complete a probability distribution table. The probability of Anderson not paying equals the probability of the Andper LLC not defaulting during the five years, which is 100 percent minus the 26.52 percent probability that it will default within the five years. Figure 10 presents the probability distribution.

Figure 10: Probability Distribution of Satisfying Assumed Share of Tax-Partnership Liability						
Event	Year 1 Default	Year 2 Default	Year 3 Default	Year 4 Default	Year 5 Default	No Default After 5 Years
Random Variable	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$0
Probability of Event	4.47%	6.05%	6.01%	5.24%	4.75%	73.48%
Expected Cost of Event	\$2,235	\$3,025	\$3,005	\$2,620	\$2,375	n/a

Having determined the random variables and the probability of each one occurring, Anderson could use the expected value formula presented in Equation 1 ($\sum = X_i \times P(X_i)$) to compute the expected cost of assuming a greater share of Andper LLC's liabilities. In this situation, the random variable would be the amount the member would pay in a given year and $P(X_i)$ would represent the probability that the member would make that payment. The application of the expected value formula is relatively simple. The expected cost to Anderson would be \$13,260, but this value does not account for the time value of money.

C. MODEL FOR EXPECTED VALUE OF LIABILITY ASSUMPTION

To accurately compute the cost of assuming a larger share of Andper LLC's liabilities, Anderson must discount the expected cost of such payments for each year to present value. By using the present value of the cost, the expected cost analysis will represent an appropriate comparison to the \$17,500 tax benefit he would receive by freeing up the tax deduction currently. Equation 6 represents the present value of a future payment:²⁰⁴

$$(6) \quad PV = X_i \div (1 + r)^i$$

In this equation, X_i equals the amount of the expected cost of the future payment in year i . For instance, if Anderson was computing the present value of paying the \$50,000 in the second year, X_2 would equal \$50,000. The other variable in the present value equation is r , which represents the discount rate. The discount rate represents the return that Anderson would

204. See RICHARD A. BREALEY, STEWART C. MYERS, FRANKLIN ALLEN, *PRINCIPLES OF CORPORATE FINANCE* 22 (10th ed. 2011).

receive if he invested proceeds at market rate.²⁰⁵ Assuming the discount rate is 5 percent, Anderson could determine the present value of that future \$50,000 payment as presented in Equation 7.

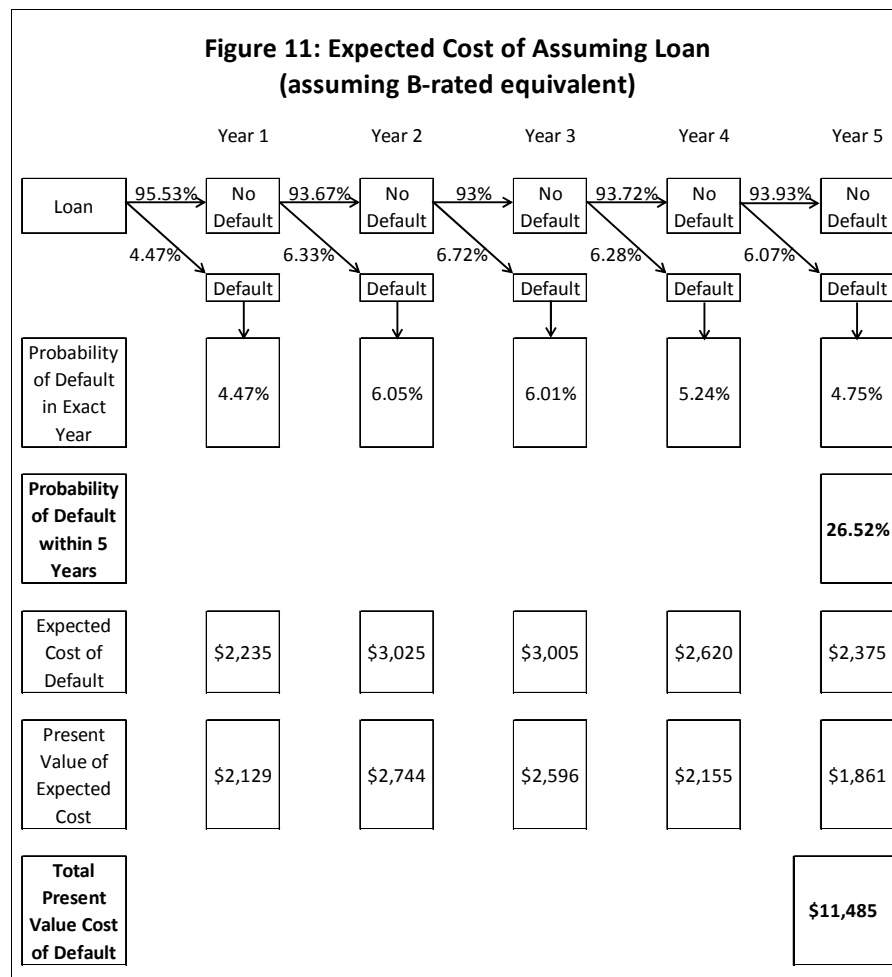
(7)

$$PV = \$50,000 \div (1 + 0.05)^2 = \$45,351$$

Because Anderson is risk neutral and he believes that there is only a 6.05 percent chance he will pay the full \$50,000 at the end of the second year, he would compute the present value of the \$3,025 expected cost of paying the share of the liability. The present value of that payment would be \$2,744. He could compute the present value of the total expected cost of making the \$50,000 payment during the first two years by adding that amount to the \$2,129 present value expected cost of paying the \$50,000 at the end of the first year. The total expected cost of assuming a greater share of the liability for the first two years after the assumption would therefore be \$4,873. Totaling the present values of the expected costs for each of the five years gives Anderson the total present value of the expected cost of assuming a greater share of the liability.²⁰⁶ Figure 11 presents the probability tree with the expected cost of assuming the larger share of Andper LLC's liabilities.

205. Indeed, the present value equation is merely the inverse of the future value equation, which is $F = X(1+r)^i$. The variables are the same as those used for the present value equation, but X represents a current payment. For instance, if a person invested \$10,000 ($X = \$10,000$) today at 5 percent interest ($r = 5\%$), the future value of that payment after one year ($i = 1$) would be \$10,500 ($10,000 \times (1 + 0.05)$).

206. $\$11,485 = [(0.047 \times \$50,000) \div 1.05^1] + [(95.53 \times 0.063 \times \$50,000) \div 1.05^2] + [(95.53 \times 93.67 \times 0.067 \times \$50,000) \div 1.05^3] + [(95.53 \times 93.67 \times 93 \times 0.063 \times \$50,000) \div 1.05^4] + [(95.53 \times 93.67 \times 93 \times 93.72 \times 0.061 \times \$50,000) \div 1.05^5]$



Incorporating the present value formula into the expected cost equation presents an eloquent formula for determining the expected cost of assuming a greater share of a tax partnership's liabilities. Equation 7 represents the expected cost a member incurs to increase the member's share of a tax partnership's liability.

$$(7) \quad \sum_{i=1}^{\text{length of risk exposure}} [(X_i \times P(X_i))] \div (1 + r)^i$$

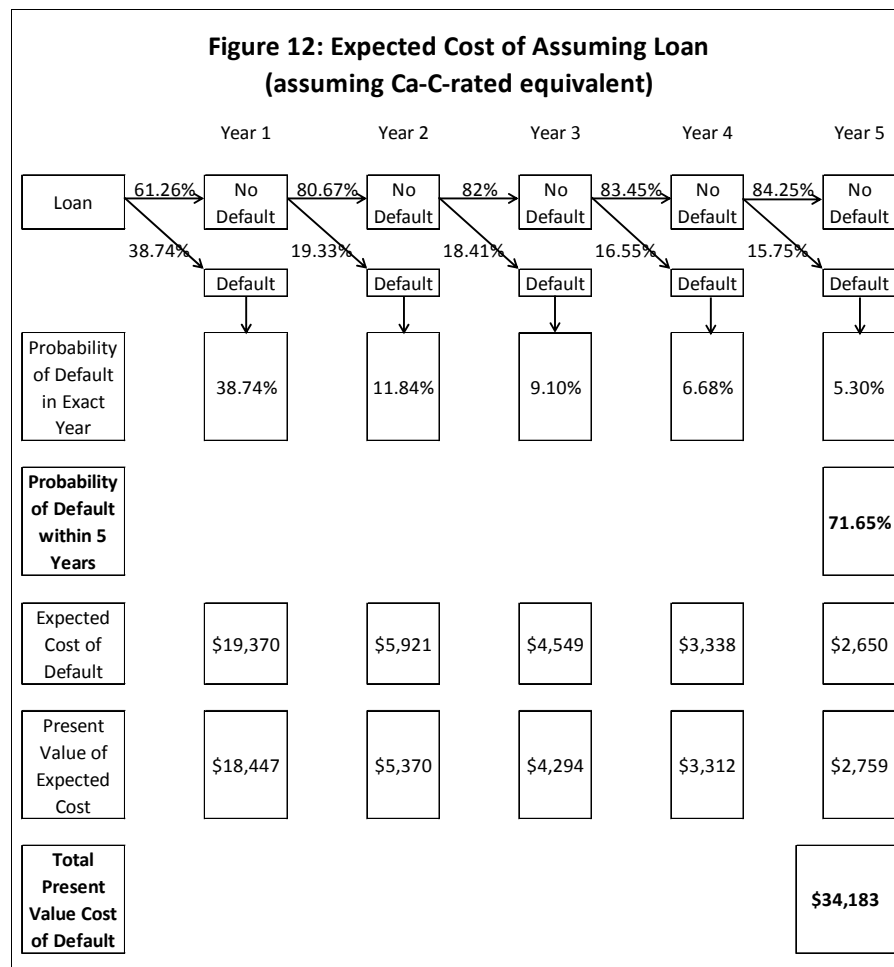
A slight modification to the equation depicts the cost-benefit decision of assuming a greater share of tax-partnership liabilities to qualify for a current tax deduction. Assume that B represents the tax benefit the member receives from taking the deduction, Equation 8 represents the expected value that a member of a tax partnership will obtain by assuming a greater share of the tax partnership's liabilities to take a tax deduction currently.

$$(8) \quad B - \sum_{i=1}^{\text{length of risk exposure}} [(X_i \times P(X_i)) \div (1 + r)^i]$$

In the equation, X_i represents the random variable for the i^{th} year; and $P(X_i)$ represents the probability of the outcome occurring; i represents the respective year, and r represents the discount rate. Because this model helps a member of a tax partnership choose whether to take a deduction at the expense of assuming a larger share of the tax partnership's liabilities, Equation 8 is the Model for Expected Value of Liability Assumption. If the Model for Expected Value of Liability Assumption returns a positive number, a risk-neutral member of a tax partnership would be inclined to assume the greater share of tax-partnership liabilities to qualify for the current tax deduction. If the Model returned a negative value, the member would be less inclined to assume the larger share of tax-partnership liabilities. The assumptions used to arrive at the expected value of the liability assumption would make the decision less than certain for many members of tax partnerships, but it provides an analytical framework for quantifying the decision.

Consider how Anderson will use the Model for Expected Value of Liability Assumption. The benefit (B) to Anderson for freeing up the deduction is \$17,500 (the \$50,000 deduction multiplied by his 35 percent tax rate). As determined above, the cost, in present value terms, of Anderson assuming a greater share of Andper LLC's liabilities is \$11,485. Because the \$17,500 benefit exceeds the \$11,485 cost, Anderson would choose to take the deduction and assume the \$50,000 of liability. This illustrates that even if the quality of a tax partnership's liabilities is fairly low (B-rated), assuming a larger share of the liability may be less costly than forgoing a tax deduction. If the tax partnership's liabilities were even less risky, the cost would diminish significantly. In fact, based upon the general assumptions related to the tax benefit of the deduction and the time horizon of exposure to the liability payment, Anderson's cost of assuming the additional share of Andper LLC's liability would be prohibited only if the liability was rated very low. For example, Figure 12 illustrates the expected cost to Anderson assuming the liability is equivalent to a Ca-C-rated bond.²⁰⁷ With such a low rating, the expected cost of assuming a larger share of the liability would be \$34,183, which would not justify taking the deduction currently.

207. $\$34,182.79 = [(0.3874 \times \$50,000) \div 1.05^1] + [(0.6126 \times 0.1933 \times \$50,000) \div 1.05^2] + [(0.8067 \times 0.6126 \times 0.1841 \times \$50,000) \div 1.05^3] + [(0.82 \times 0.8067 \times 0.6126 \times 0.1655 \times \$50,000) \div 1.05^4] + [(0.8345 \times 0.82 \times 0.8067 \times 0.6126 \times 0.1575 \times \$50,000) \div 1.05^5]$



The Model for Expected Value of Liability Assumption is not the only method for determining whether increasing the share of a tax partnership's liability is a rational business decision. For example, instead of discounting each year's expected cost of default to its respective present value and comparing the sum of those costs to the present value of the tax benefit, a member of a tax partnership could calculate the future value of the tax benefit and compare it to the future expected cost of default. This computation requires the member to determine the initial tax benefit, calculate the value of the benefit at the end of the year, and then deduct the expected cost for that year. The difference will be carried forward to the next year where the member will calculate the future value of the difference, and then deduct the expected cost for that year. Essentially, the computation requires the member to compute the tax benefit plus one year's worth of interest minus the expected cost for that year. This calculation will

be done for each year. Equation 9 presents the alternate version of the cost-benefit equation.

(9)

$$B_i \times (1 + r) - C_i = B_{(i+1)}$$

In this equation, B represents the tax benefit for that respective year, i represents the year, r represents the interest rate, and C represents the expected cost for that respective year. Using this equation, B_0 would represent the \$17,500 initial tax benefit. B_1 would represent the tax benefit at the end of Year 1. B_i would equal the \$17,500 Year 1 benefit multiplied by 1.05 (assuming a 5 percent interest rate) minus the \$2,235 Year 1 expected cost from Figure 11. Using B_1 , the member could calculate B_2 . Anderson, for example, would follow this method until he calculates the tax benefit at the end of the fifth year. If the benefit at that point is greater than or equal to zero, Anderson would profit from assuming the larger share of Andper LLC's liability and taking the deduction. If the benefit at the end of five years is less than zero, then Anderson would incur a loss, which means that Anderson would not benefit from the deduction and increased share of Andper LLC's liability.

As demonstrated above, the expected cost to Anderson of assuming an additional \$50,000 of Andper LLC's liabilities for each of Years 1 through 5 would be \$2,235, \$3,025, \$3,005, \$2,620, and \$2,375, respectively. The tax benefit is \$17,500. At the end of Year 1, the future value of that benefit would be \$18,375. After subtracting the Year 1 \$2,235 expected cost, the Year 2 benefit would be \$16,140.²⁰⁸ By repeating this process, the benefit at the end of Years 2, 3, 4, and 5 would be \$13,922,²⁰⁹ \$11,613,²¹⁰ \$9,574,²¹¹ and \$7,818,²¹² respectively. Because the benefit at the end of the fifth year is positive, Anderson should be predisposed to assume the \$50,000 larger share of Andper LLC's liability using this modified formula.

CONCLUSION

This Article presents an in-depth discussion of the cost-benefit analysis that members of tax partnerships can use to decide whether to take steps to free up a loss that the basis loss limit would otherwise deny currently. Using the Model for Expected Value of Liability Assumption, members can quantify the relative cost and benefit of that decision. The Model for Expected Value of Liability Assumption presents the illusion of exactness, so members of the tax partnership must remember that the most important components of the Model are the predictions they make regarding the probability that the tax partnership will default on the liability. If they

208. $\$17,500 \times (1 + 0.05) - \$2,235 = \$16,140$.

209. $\$16,140 \times (1 + 0.05) - \$3,025 = \$13,922$.

210. $\$13,922 \times (1 + 0.05) - \$3,005 = \$11,613$.

211. $\$11,613 \times (1 + 0.05) - \$2,620 = \$9,574$.

212. $\$9,574 \times (1 + 0.05) - \$2,235 = \$7,818$.

underestimate that probability, they may choose to assume a greater share of liability and end up being obligated to pay it, and that payment would outweigh the tax benefit of taking the deduction. If they overestimate the probability, they may choose not to assume the additional shares of liability and lose a tax benefit that is more valuable than avoiding the chance the member will be obligated to pay any portion of liability. Members of tax partnerships should therefore exercise great care when determining the probability of tax-partnership default. They can, of course, mitigate the probability of default by choosing to assume a greater share of a tax-partnership liability that appears to be highly unlikely to become due within the period of time the member is at risk of loss.

The Model for Expected Value of Liability Assumption has other uses. For example, a member of a tax partnership may have sufficient basis to qualify for a deduction, but the allocation of the item may cause the member's capital account to go negative. If the member does not have a sufficient deficit restoration obligation, the allocation of the item, assuming it was not a nonrecourse deduction, may not have economic effect.²¹³ Such a situation presents the member with the choice of accepting a deficit restoration obligation or foregoing the tax deduction. If a tax partnership agreement does not include an unlimited deficit restoration obligation, members could be denied a tax deduction if it would cause them to have negative capital account balances.²¹⁴ The inclusion of a deficit restoration obligation provision in a tax partnership could obligate a member to make an additional capital contribution.²¹⁵ In fact, a deficit restoration obligation in a limited liability company's operating agreement could obligate the members of the limited liability company to make additional capital contributions to the limited liability company.²¹⁶ A member of a limited liability company may have to accept a deficit restoration obligation and the potential liability of making an additional capital contribution to qualify for a tax deduction. A member in such a situation would have to weigh the cost of incurring a deficit restoration obligation against the benefit of qualifying for a tax deduction. The member could weigh that cost and benefit using the Model for Expected Value of Liability Assumption.²¹⁷ Thus, the Model has uses in multiple contexts.

Even for members of tax partnerships who prefer to avoid the hyper-technical aspects of the Model for Expected Value of Liability Assumption, it demonstrates a concept that should prove useful. A member of a tax

213. See Treas. Reg. § 1.704-1(b)(2)(ii) (1960).

214. See Treas. Reg. § 1.704-1(b)(2)(ii)(b)(3).

215. See Treas. Reg. § 1.704-1(b)(2)(ii)(c).

216. See Treas. Reg. § 1.704-1(b)(2)(ii)(c).

217. Unlike losses suspended by the basis loss limit, allocation losses that do not have economic effect can be lost to a member forever. Consequently, the benefit of assuming a greater deficit restoration obligation may be greater than the benefit of qualifying currently for a deduction that would otherwise be suspended by the basis loss limitation.

partnership may prefer to assume a greater share of liability to qualify for a current deduction. Thus, the Model for Expected Value of Liability Assumption should have broad conceptual appeal.