

College of William & Mary Law School
William & Mary Law School Scholarship Repository

Faculty Publications

Faculty and Deans

2016

Taxing Losers

Eric D. Chason

William & Mary Law School, edchas@wm.edu

Repository Citation

Chason, Eric D., "Taxing Losers" (2016). *Faculty Publications*. 1814.
<https://scholarship.law.wm.edu/facpubs/1814>

Copyright c 2016 by the authors. This article is brought to you by the William & Mary Law School Scholarship Repository.
<https://scholarship.law.wm.edu/facpubs>

FLORIDA TAX REVIEW

Volume 18

2016

Number 9

TAXING LOSERS

By

Eric D. Chason *

ABSTRACT

The U.S. tax system, like most in the world, benefits capital gains in two ways. Investors can defer paying tax until they “realize” any gain (typically by sale) rather than when the gain simply occurs via rising prices. Additionally, individual investors pay a lower, preferred rate on their long-term capital gains as compared to their other ordinary income (such as compensation or business profits).

However, investors face a burden with respect to their capital losses. Rather than allowing for unlimited capital loss deductions, the Code largely forces investors to match their capital losses against their capital gains. Limits on capital losses could be justified in several ways. The most prominent justification holds that taxpayers should not be able to “cherry pick” loss elements out of an overall winning portfolio. This Article seeks to clarify the nature of the cherry-picking argument. It drops “cherry picking” in favor of the somewhat more descriptive “loss harvesting” used in wealth management literature. We will imagine a world in which Congress does not force taxpayers to match losses against gains. In this world, taxpayers could harvest isolated losses whenever they arise and enjoy the benefits of loss deductions—even if the taxpayer has an overall winning portfolio. Using insights from option theory, we can estimate the cost of aggressive loss harvesting.

* Associate Professor of Law, William & Mary Law School. I thank the following for their thoughtful comments and suggestions: Michael Doran, Michelle Drumbl, Brant Hellwig, Ruth Mason, Gregg Polsky, and Ethan Yale. I also thank the participants of the William & Mary Law School Enrichment series for their comments and for allowing me to present this paper to them in January 2015.

Forced matching of losses against gains is the primary way the Code curtails loss harvesting. However, forced matching comes at a cost, as it will deny loss deductions to investors who have suffered true losses. Again, option theory gives us a method for estimating these costs and—more importantly—comparing them to the costs of loss harvesting. Based on this comparison, we will see that the “cure” of forced matching may be worse than the “disease” of loss harvesting.

TABLE OF CONTENTS

I.	INTRODUCTION	543
II.	TAX THEORY AND DOCTRINE RELEVANT TO LOSS DEDUCTIONS.....	545
	A. <i>Haig-Simons Economic Definition of Income.....</i>	<i>545</i>
	B. <i>Realization and the Doctrinal Definition of Income</i>	<i>546</i>
	C. <i>Lower Rate for Long-Term Capital Gains of Individuals</i>	<i>547</i>
	D. <i>Loss Deductions and Related Limits.....</i>	<i>548</i>
III.	TAX POLICY CONSIDERATIONS OF CURRENT DEDUCTIONS FOR NET CAPITAL LOSSES.....	550
	A. <i>Loss Deductions in an Idealized Haig-Simons Tax</i>	<i>550</i>
	B. <i>Loss Deductions Under a Realization-Based Tax.....</i>	<i>551</i>
	C. <i>Relationship to Stepped-Up Basis.....</i>	<i>552</i>
	D. <i>Revenue Effects of Loss Deductions</i>	<i>553</i>
IV.	TAX-MOTIVATED SELLING AS JUSTIFYING LOSS LIMITS	554
	A. <i>Introduction</i>	<i>554</i>
	B. <i>Examples Where Losses Should Be Limited</i>	<i>555</i>
	C. <i>Examples of Improperly Limited Losses</i>	<i>557</i>
	D. <i>Portfolio Losses and Tax Motivation.....</i>	<i>558</i>
	E. <i>Net Loss Deductions and Economic Holding Period.....</i>	<i>559</i>
V.	MODELING LOSS HARVESTING	561
	A. <i>Loss Harvesting in a World Without Frictions</i>	<i>561</i>
	1. <i>Hypothetical Investor and Tax System.....</i>	<i>561</i>
	2. <i>Benefit of Isolated Loss Harvesting</i>	<i>562</i>
	3. <i>Theoretical Maximum Value for Loss Harvesting.....</i>	<i>564</i>
	B. <i>Comparing the Cost of Loss Limitations</i>	<i>567</i>
	C. <i>Restraints on Loss Harvesting</i>	<i>571</i>
	1. <i>Tax Arbitrage</i>	<i>571</i>
	2. <i>Implicit Taxes.....</i>	<i>572</i>
	3. <i>Loss Limitations.....</i>	<i>573</i>
	4. <i>Wash-Sale Rules</i>	<i>575</i>

	5.	<i>Transaction Costs and Other Frictions</i>	577
D.		<i>Valuing Loss Harvesting Under Frictions</i>	578
	1.	<i>The Difficulty of Loss Harvesting Under Frictions</i>	578
	2.	<i>When Harvesting Is Clearly Advisable or Inadvisable</i>	579
	3.	<i>Guiding the Exercise Decision with Black-Scholes</i>	580
	4.	<i>A Monte-Carlo Simulation</i>	583
VI.		CONCLUSION	586

I. INTRODUCTION

The U.S. tax system, like most in the world, benefits capital gains in two ways. Investors can defer paying tax until they “realize” any gain rather than when the gain simply occurs. Additionally, individual investors pay a lower, preferred rate on their long-term capital gains as compared to their other ordinary income, such as compensation or business profits. However, investors face a burden with respect to their capital losses. Rather than allowing for unlimited capital loss deductions, the Code largely forces investors to match their capital losses against their capital gains.

This system could be justified in several ways. The benefits of capital gains should be balanced with burdens on capital losses. Taxpayers should not be able to “cherry pick” loss elements out of an overall winning portfolio.¹

1. See, e.g., Yoseph M. Edrey, *What Are Capital Gains and Losses Anyway?*, 24 VA. TAX REV. 141, 171 (2004) (“This creates what is called the ‘cherry-picking’ problem: the taxpayer will be able to choose a convenient date to dispose of the asset and realize a loss that will offset regular taxable income. The common ground of these problems and arguments is found in the realization requirement.”); Michelle Arnopol Cecil, *Toward Adding Further Complexity to the Internal Revenue Code: A New Paradigm for the Deductibility of Capital Losses*, 99 U. ILL. L. REV. 1083, 1087–88 (1999) (“[L]oss limitations prevent a tax avoidance scheme known as ‘cherrypicking,’ in which taxpayers sell their capital loss assets and offset those losses against ordinary income while retaining their capital gain assets and avoiding the imposition of tax on that gain.”); Deborah A. Geier, *The Myth of the Matching Principle as a Tax Value*, 15 AM. J. TAX POL’Y 17, 23 (1998) (“The realization rule means that a taxpayer with a portfolio of unrealized gains and losses could selectively realize his losses, leaving his gains unrealized, and create a tax loss where the taxpayer has no net economic losses. Section 1211 prevents such ‘cherry picking.’”); Robert H. Scarborough, *Risk, Diversification and the Design of Loss Limitations Under a Realization-Based Income Tax*, 48 TAX L. REV. 677, 680–81 (1993) (“It is widely agreed that the principal justification for limiting capital losses is to prevent selective realization, or ‘cherrypicking,’ of losses by taxpayers who have unrealized gains.”).

Perhaps most convincing of all was the idea that investment losses were either isolated or transitory. An investor reporting losses probably has other gains in her portfolio. Even if she does not currently have such gains, asset values tend to go up over time. In a few years, she will have made back her losses and then some.

Such optimism about the rarity and impact of investment losses was perhaps justified in the past. From the end of World War II until 2007, markets for U.S. stocks and real estate enjoyed steady and substantial gains.² The financial crisis and ensuing recession (perhaps depression) disrupted this winning streak. Even today, those who began investing at the start of the millennium are often underwater. Lackluster investment performance in Japan over the past twenty-plus years presents another challenge to the view that investment losses are transitory.³

These recent experiences should cause us to question (or to at least scrutinize) the Code's limits on capital loss deductions. Interestingly, the topic has attracted relatively little recent attention,⁴ even though the classic article on the topic questioned the efficacy of loss limits.⁵ Writing in 1973, Professor Alvin Warren observed that "traditional wisdom has it that partial taxation of capital gains should lead to limited deductibility of capital losses."⁶ After reviewing the history of capital loss limits and the arguments for them, Professor Warren found only two convincing arguments for the forced matching of capital losses against capital gains. First, forced matching ensures that the benefits of capital losses are commensurate with the burdens of capital gains.⁷ In terms of today's rate structure, a taxpayer should not be able to deduct capital losses against ordinary income that might be taxed at 40 percent while paying only a 20 percent tax rate on capital gains. Even this concern is a mechanical one that could be solved by adjusting the size of capital losses. Second, Professor Warren would justify forced matching in order to prevent

2. See, e.g., Jeremy J. Siegel, *The Equity Premium: Stock and Bond Returns Since 1802*, 48 FIN. ANALYSTS J. 28 (1992).

3. Japan's stagnate investments may not have affected its overall prosperity. See Eamonn Fingleton, *The Myth of Japan's Failure*, N.Y. TIMES, Jan. 6, 2012, http://www.nytimes.com/2012/01/08/opinion/sunday/the-true-story-of-japans-economic-success.html?_r=0&pagewanted=print.

4. Cf. *supra* note 1 (citing articles from past twenty years).

5. Alvin C. Warren, Jr., *The Deductibility by Individuals of Capital Losses under the Federal Income Tax*, 40 U. CHI. L. REV. 291 (1973) [hereinafter Warren, *Capital Losses*].

6. *Id.* at 325. At the time Professor Warren wrote the Article, the Code applied "partial" taxation to capital gains by granting a 50 percent deduction for their value. See *id.* at 292. Today, however, the Code specifies a lower rate structure for capital gains.

7. *Id.*

taxpayers from inappropriately averaging and deferring income over several taxable years.⁸ This argument is a variant of the cherry-picking metaphor introduced above.

This Article seeks to clarify the nature of the cherry-picking argument. It drops “cherry picking” in favor of the somewhat more descriptive “loss harvesting” used in wealth management literature.⁹ We will imagine a world in which Congress does not force taxpayers to match losses against gains. In this world, taxpayers could harvest losses whenever they arise and enjoy loss deductions. Using insights from option theory, we can estimate the cost of aggressive loss harvesting.

Forced matching of losses against gains is the primary way the Code curtails loss harvesting. However, forced matching comes at a cost, as it will deny loss deductions to investors who have suffered true losses. Again, option theory gives us a method for estimating these costs and—more importantly—comparing them to the costs of loss harvesting. Based on this comparison, we will see that the “cure” of forced matching may be worse than the “disease” of loss harvesting.

II. TAX THEORY AND DOCTRINE RELEVANT TO LOSS DEDUCTIONS

A. *Haig-Simons Economic Definition of Income*

Policymakers must define “income” before they can tax it. The starting point for most commentators is the “Haig-Simons” definition, which states: “Personal income may be defined as the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the store of property rights between the beginning and end of the period in question.”¹⁰ This Article considers the tax treatment of capital losses. Thus,

8. *Id.*

9. See generally Jeffrey E. Horvitz, *Tax Deferral and Tax-Loss Harvesting*, in PRIVATE WEALTH: WEALTH MANAGEMENT IN PRACTICE 317 (Stephen M. Horan ed. 2009) [hereinafter Horvitz, *Tax-Loss Harvesting*]; Andrew L. Berkin & Jia Ye, *Tax Management, Loss Harvesting, and FIFO Accounting*, in PRIVATE WEALTH: WEALTH MANAGEMENT IN PRACTICE, *supra* at 327. One cannot help wonder why agrarian metaphors are so prevalent in taxation. Cf., e.g., Patricia A. Cain, *The Story of Earl: How Echoes (and Metaphors) from the Past Continue to Shape the Assignment of Income Doctrine*, in TAX STORIES 305 (Paul L. Caron ed., 2d ed. 2009) (discussing the famous “fruit and tree” metaphor in *Lucas v. Earl*, 281 U.S. 111 (1930)).

10. BORIS I. BITTKER & LAWRENCE LOKKEN, FEDERAL TAXATION OF INCOME, ESTATES AND GIFTS ¶ 3.1 (2015) (quoting HENRY C. SIMONS, PERSONAL INCOME TAXATION 50 (1938)) [hereinafter BITTKER & LOKKEN, FEDERAL TAXATION].

we will focus on element (2) and can ignore the cryptic reference to algebra and the inclusion of consumption. The “period in question” is almost always the year (and usually the calendar year), although periods other than the orbital period of the Earth around the Sun are possible.¹¹

As a conceptual matter, Haig-Simons element (2) calls upon us to value the taxpayer’s property at the beginning and end of the year. Increases in value should be taxed. A portfolio that rises in value from \$1 million to \$1.2 million gives rise to \$200,000 of income. Later, we will consider how decreases should be treated.¹²

Haig-Simons appeals to scholars because of its breadth. An investor who gains \$200,000 in the stock market has the same Haig-Simons treatment as a lawyer who makes \$200,000 in net fees. The source of the income is irrelevant. Thus, Haig-Simons supports the tax policy goal of “horizontal equity.” Because the investor and the lawyer saw the same \$200,000 accretion to wealth, they should pay the same income tax. Thus, the form of wealth is irrelevant, so long as the wealth can plausibly be valued. Haig-Simons would clearly tax the appreciation in value of a stock portfolio. It would likely not, however, tax a lawyer on the discounted present value of future earnings when she makes partner at her law firm. As a result of making partner, she is wealthier in some sense, but the increase in value is too “speculative,” difficult to value, and subject to her continued hard work along with countless other contingencies.

Of course, Haig-Simons analysis assumes that income is the proper base for taxation. An alternative base of consumption would tax only element (1). A commonly held view is that the U.S. income tax is really a hybrid system that purports to tax all income, but gives preferential treatment to returns on capital.¹³ The goal of this Article is to determine the proper treatment of investment losses within the broad confines of the U.S. income tax system.

B. Realization and the Doctrinal Definition of Income

Haig-Simons would include all accretions to wealth in income. The U.S. income tax system clearly taxes dividends, interest, rents, royalties, and similar payments made to property owners.¹⁴ Capital appreciation and the increase in property values are also included in income as “gains derived from

11. See Jeff Strnad, *Periodicity and Accretion Taxation: Norms and Implementation*, 99 YALE L.J. 1817 (1990).

12. See *infra* Part III.A.

13. See MICHAEL J. GRAETZ, *THE DECLINE (AND FALL?) OF THE INCOME TAX* (1997).

14. See I.R.C. § 61(a)(4)–(7).

dealings in property.”¹⁵ “Capital gains,” described in detail later,¹⁶ represent perhaps the most significant subcategory of gains derived from dealings in property.

Even though the income tax applies to capital appreciation, the timing of the tax differs from what Haig-Simons contemplates. Haig-Simons would tax capital appreciation as it occurs, comparing the starting and ending values of property over the course of the year. The United States (like most nations with an income tax) taxes capital appreciation only when it is “realized,” typically when the investor sells an asset for cash or exchanges it for other property.¹⁷ We need both appreciation and the realization event of a sale or exchange.¹⁸ Thus, an investor who sees her portfolio rise by \$200,000 over the year may not have \$200,000 of taxable income. If she made no sales or exchanges and received no dividends, she would likely have no income from the portfolio for the time being.

This Article will focus on relatively simple realization events like the cash sale of stock or land that the investor bought in the past. In this case, the gain would be the difference between the cash she receives upon realization (“amount realized” in tax speak) and what she paid for the asset in the past (“basis” in tax speak).¹⁹

C. Lower Rate for Long-Term Capital Gains of Individuals

Capital gains are an important subcategory of gains derived from dealings in property (so important, in fact, that laypersons often refer to all gains as “capital gains”). Capital gains are gains from the sale or exchange of a “capital asset.” We can sidestep the nuanced and troubled definition of capital asset and note that it generally refers to investments as opposed to

15. See I.R.C. § 61(a)(3).

16. See *infra* Part II.C.

17. See Reg. §§ 1.61-6(a), 1.1001-1(a). The realization doctrine may have had a constitutional component at one time. *Eisner v. Macomber* held that unrealized gain was not “income” that could be properly taxed under the Sixteenth Amendment. Though its constitutional heritage is now in doubt, the realization doctrine remains a central part of modern income tax systems.

18. The Code does, however, tax certain derivatives contracts based on their annual change in value. See I.R.C. § 1256.

19. Gain equals the “amount realized” less the “adjusted basis.” See I.R.C. § 1001(a); Reg. §§ 1-61(a), 1.1001-1(a). “Amount realized” is the cash and other property received upon realization. See I.R.C. § 1001(b); Reg. § 1.1001-1(a); see also Reg. § 1.1001-2 (treating discharge of liabilities as part of the amount realized). “Adjusted basis” is the original “basis” or cost adjusted for depreciation and improvements. See I.R.C. §§ 1011(a), 1012(a), 1016(a); Reg. § 1.1011-1.

inventory.²⁰ For example, corporate stock is a capital asset unless held by a dealer.

Individuals pay a lower rate of tax on the gain from capital assets held for more than one year. The maximum rate on such long-term capital gains is currently 20 percent, compared with 39.6 percent for other individual income.²¹ Commentators have offered several defenses and criticisms of this preference. Some of the theories are relevant to the topic of this Article and will be considered in more detail below.²² Corporations do not enjoy a lower rate on their capital gains.²³ Similarly, individuals with short-term capital gains do not enjoy a lower rate.²⁴

D. *Loss Deductions and Related Limits*

So far, we have assumed that the taxpayer's investments have treated her well with a gain. Events since 2007 remind us that investments do not invariably go up. When the sales price (or "amount realized") is less than what the investor paid (or "basis"), she is potentially entitled to a deduction for the shortfall.²⁵ The Code imposes several limits on losses to ensure that they reflect a real harm to economic welfare. Individuals may not ordinarily deduct losses on their personal-use assets (like their cars and even their homes).²⁶ The Code presumes that such losses result from the use (or, in Haig-Simons terms, consumption) of the personal-use asset. My 2000 Nissan Maxima is worth less today than when purchased thirteen years ago because I used or consumed it. Its decline in value (bad for me) was coupled with my consumption (good for me), meaning I should have no tax consequences from it. That being said,

20. See generally I.R.C. § 1221(a) (defining capital asset as "property" other than inventory and other enumerated exclusions).

21. Compare I.R.C. § 1(i)(3)–(4) (establishing maximum rate of 39.6 percent on individuals) with I.R.C. § 1(h)(1)(D) (establishing maximum rate of 20 percent on long-term capital gains of individuals). These rates do not take into account the 3.8 percent surtax imposed on certain high-income taxpayers by section 1411.

22. See *infra* Part II.D.

23. See JAMES S. EUSTICE & THOMAS BRANTLEY, BITTKER & EUSTICE: FEDERAL INCOME TAXATION OF CORPORATIONS AND SHAREHOLDERS ¶ 5.01[2] (2015).

24. See BITTKER & LOKKEN, FEDERAL TAXATION, *supra* note 10 at ¶ 46.2.

25. See I.R.C. § 165.

26. See Reg. § 1.262-1(b)(4). But cf. I.R.C. § 165(c)(3), (h) (granting limited loss deductions on personal-use assets when the loss arises from "fire, storm, shipwreck, or other casualty, or from theft").

recent declines in residential real estate resulted not from intensive use or consumption, but from market conditions.²⁷

Investment losses²⁸ have their own hurdles to clear. Above, we saw that individuals enjoy a lower, preferential rate on their long-term capital gains.²⁹ Capital losses, though, receive disfavored treatment. Taxpayers may deduct their capital losses against their capital gains. If they have net losses, though, the losses are largely unusable as a deduction against their other income (like business profits or compensation).³⁰ These limits apply even in contexts where gain would not receive a preferred rate (i.e., capital losses of corporations and short-term capital losses of individuals). Taxpayers subject to these limits do not face outright disallowance. Individuals may “carry over” their net capital losses to later years and use them to offset any future capital gain.³¹ Corporations may “carry back” their net capital losses to the prior three taxable years; if the corporation had capital gains in the prior years, it can offset those past gains and obtain an immediate refund for the tax paid on them.³² If the corporation does not have enough past capital gains, it can carry the losses forward for the next five years.³³

This Article focuses its attention on the capital-loss limits just described. The Code contains other limits as well. Most are tangential to the concerns of this Article,³⁴ but one—the wash-sale rule³⁵—is particularly relevant. Suppose an investor sells stock in G Corp. at a \$100,000 gain earlier in the year. She has stock in another company, L Corp., that has declined in value by \$100,000; still, she would like to continue holding L Corp. stock with the expectation of better returns in the future. The investor gets the idea that

27. From its market high from late 2006 to May 2013, U.S. residential real estate has fallen in value by about 30 percent. *See* S&P/Case-Shiller 20-City Composite Home Price Index, <http://www.spindices.com/indices/real-estate/sp-case-shiller-20-city-composite-home-price-index>.

28. Investment losses would generally be deductible under I.R.C. § 165(c)(2) as “losses incurred in any transaction entered into for profit, though not connected with a trade or business.”

29. *See supra* Part II.C.

30. *See* I.R.C. § 1211. Individuals, but not corporations, may deduct up to \$3,000 per year of net losses against their other income. *But cf.* § 1244 (expanding deduction for losses on certain “small business stock”).

31. *See* I.R.C. § 1212(b).

32. *See* I.R.C. §§ 1212(a), 6411(a)–(b). Even though the carryback relates back to the prior year and produces a refund, the corporation is not considered to have made an overpayment that entitles it to interest. *See* I.R.C. § 6611(f)(1).

33. *See* I.R.C. § 1212(a)(1)(B).

34. *Cf., e.g.,* I.R.C. § 267 (disallowing losses on sales between related parties).

35. *Cf.* I.R.C. § 1091 (disallowing losses from the wash-sale of securities).

she could sell the L Corp. stock, realize the \$100,000 loss to offset her prior \$100,000 gain, and quickly replace the L Corp. stock. The wash-sale rules of section 1091 put a minor speed bump in front of the investor. If she replaces the sold L Corp. stock within thirty days of the sale, section 1091 disallows her loss. The simplest maneuver around section 1091 would be to wait for thirty-one days, although other strategies work as well.³⁶ We should also note that section 1091 does not apply to all losses, but only to those realized on stock or securities.³⁷

III. TAX POLICY CONSIDERATIONS OF CURRENT DEDUCTIONS FOR NET CAPITAL LOSSES

A. *Loss Deductions in an Idealized Haig-Simons Tax*

Let us focus on the Haig-Simons taxation of items we would identify as property, perhaps a portfolio of stock. Haig-Simons would simply look at each holding to determine gain or loss. Then, it would net the gains and losses across all holdings to determine gain for the year. Tax would then be paid on the net gain.

Our concern in this Article is when the taxpayer has a net loss on property transactions for the year. Under Haig-Simons, no good reason exists for not letting the taxpayer use this loss as a deduction against her other forms of income (for example, her compensation income). Horizontal equity requires that similarly situated taxpayers pay similar amounts of tax. The whole point of Haig-Simons income is to measure someone's "situation." Suppose that one taxpayer has \$500,000 of compensation income. Another has \$1 million of compensation, but suffers a loss (whether or not realized) of \$500,000. From a Haig-Simons perspective, both taxpayers have \$500,000 of income and should pay similar tax.³⁸

We thus achieve horizontal equity by granting the second taxpayer a loss deduction of \$500,000. More generally, Haig-Simons taxation should allow taxpayers to deduct their capital losses against all forms of income. Indeed, characterizing certain items as "capital" or "ordinary" is irrelevant under Haig-Simons taxation. We could press this argument further and ask what happens if the capital losses exceed all other forms of income. For example, what if our taxpayer with \$1 million of compensation suffered capital losses of \$1.5 million? We need not address that issue directly, except to say that our taxpayer has suffered a net loss of \$500,000 and should be treated like

36. See generally David M. Schizer, *Scrubbing the Wash Sale Rules*, 82 TAXES 67 (2004) (describing strategies for avoiding section 1091) [hereinafter Schizer, *Wash Sale Rules*].

37. See I.R.C. § 1091(a); Reg. § 1.1091-1(a).

38. See Warren, *Capital Losses*, *supra* note 5, at 293-97.

any other taxpayer who has suffered a net loss (perhaps from business) for the year.

In short, capital losses have no special treatment under Haig-Simons taxation. They are deductible just like any other form of economic loss. We need not worry about the classic concerns of “cherry picking” or “loss harvesting.” The taxpayer has no control at all over the timing of her gain or loss.

B. *Loss Deductions Under a Realization-Based Tax*

Real world taxing authorities rarely collect taxes on the basis of Haig-Simons income.³⁹ Instead, tax systems usually recognize gains or losses when the taxpayer realizes them by sale or exchange. This realization requirement gives the taxpayer the power to decide when gains or losses enter the tax system. Haig-Simons, in contrast, disables the taxpayer from timing her capital gains and losses.

The realization requirement greatly complicates the neat Haig-Simons analysis offered above. Suppose that the tax is imposed upon realization and that losses are fully deductible. Taxpayers now have an incentive to defer their gains and accelerate their losses.⁴⁰

This is one aspect of the “cherry picking” that concerns commentators as the manipulation of gain or loss potentially destroys the horizontal equity analysis just offered. Suppose, again, that we have two taxpayers. One has \$500,000 of compensation income and no *realized* gain or loss. The other has \$1 million of compensation income, but has realized a loss of \$500,000. Are the two similarly situated? One might say, tautologically, “Yes, they are,” if the tax system allows the second taxpayer a loss deduction. However, we are seeking to tax something like the ability to pay or the enhancements to economic welfare.⁴¹ From those perspectives, we really do not know if the two are similarly situated because we do not know about the entirety of their holdings.

More generally, we should be concerned that fully deductible losses would systematically distort the measure of income. Investors who have losses would simply realize them and “harvest” the resulting deduction. The large \$500,000 loss of the investor above may simply be evidence of great wealth, a large portfolio, and unrealized gains. As we saw before, section 1211 forces taxpayers to match their capital losses against their capital gains.⁴² In effect,

39. *See supra* Part II.B.

40. By waiting until death, taxpayers (or their beneficiaries) will see any remaining gain wiped away by the basis step-up rule. *See infra* Part III.C.

41. *See supra* Part II.A.

42. *See supra* Part II.D.

section 1211 guards against cherry picking and loss harvesting by denying the possibility that taxpayers can be net losers in their investments. The interesting question is whether section 1211 is the right response.

Section 1211 does not fully solve the problem of loss harvesting. An investor who independently realizes capital gains would still have every incentive to harvest losses.⁴³ Similarly, an investor who expects to realize capital gains in the future would want to “lock in” current losses and carry them forward to offset those future gains.

C. *Relationship to Stepped-Up Basis*

Under section 1014 of the Code, individual investors receive a “stepped-up basis” in their assets upon death.⁴⁴ All the assets that their beneficiaries receive take a basis equal to the date-of-death value. The historical cost of the asset becomes irrelevant. For example, an investor might have bought stock for \$10,000 in the early 1970s. When she died in early 2016, it was worth \$1 million. Her beneficiaries take a \$1 million basis in the stock.

Allowing net loss deductions in a world with a stepped-up basis may be intolerable.⁴⁵ For an extreme example, taxpayers might always harvest their loss assets during their lifetime, but defer all their gains until their death. In this case, the government is simply paying the investor to hold capital. Section 1211, by forcing investors to match capital losses against gains, prevents them from receiving net tax benefits from their capital investments. We should ask though whether “cherry picking” or “loss harvesting” is the real culprit in our example. The investor has indeed escaped tax on gain, but this is because of section 1014’s at-death basis step up.⁴⁶ Moreover, section 1014 cannot fully justify the loss limits of section 1211. Shareholders do not get a tax-free stepped-up basis on a corporation’s assets when it “dies” by liquidating its assets.⁴⁷ Nevertheless, section 1211 applies with equal force to corporations and to individuals.

43. See Horvitz, *Tax-Loss Harvesting*, *supra* note 9, at 323 (“Tax-loss harvesting means taking voluntary losses for the sole purpose of creating a current tax deduction to offset other gains.”).

44. See I.R.C. § 1014; *see also supra* Part II.B. (discussing role of basis).

45. See Warren, *Capital Losses*, *supra* note 5, at 311–13.

46. The step up does, though, exacerbate the costs of loss harvesting. Later, this Article will describe the benefits of loss harvesting as being the same as an interest-free loan from the government to the taxpayer. Basis step up, in effect, allows the taxpayer to escape repayment of this loan. *See infra* Part V.

47. See I.R.C. § 336(a) (“[G]ain or loss shall be recognized to a liquidating corporation on the distribution of property in complete liquidation as if such property were sold to the distributee at its fair market value.”).

Many commentators have urged for repeal of section 1014.⁴⁸ While acknowledging the importance of section 1014 to the overall administration of the tax system, this Article will attempt to analyze loss deductions independently from the basis step-up rules. Thus, this Article assumes that investors do pay tax on their gains at some point, although often at a later time than when they deduct their losses. This approach makes perfect sense when analyzing corporations and when analyzing systems, other than the current one in the United States, which do not grant a stepped-up basis to investors at death.

D. Revenue Effects of Loss Deductions

Loss harvesting and cherry picking sound problematic, but we should move beyond metaphors to determine the precise problems that full loss recognition would create. An obvious candidate is a threat to revenue, which could come in two varieties.

One threat would be that unlimited loss deductions would disproportionately benefit losses compared to the burden on gains. For most of its history, the Code provided a tax preference to long-term capital gains. Under current law applicable to individuals, ordinary income is taxed at a maximum rate of almost 40 percent, whereas long-term capital gains are taxed at a maximum rate of 20 percent.⁴⁹ Lower rates exist, but let us use the maximums as representative of these two realms of taxation (ordinary income and long-term capital gains). Mechanically, the loss limits of section 1211 could be justified as ensuring a comparable rate on all capital transactions. Taxpayers should not pay a 20 percent tax on gain, but receive a 40 percent benefit for losses.

If the consistency of tax rates were the only concern, the tax laws could achieve it more directly. Capital losses could generate only a partial deduction (e.g., a 50 percent deduction against ordinary income) to reflect the preferred rate on capital gains.⁵⁰ Moreover, if rate matching were the primary consideration, section 1211 is too broad, as it applies to corporations even though their gain does not generate a preferred rate of tax.

Even with comparable rates on gains and losses, unlimited loss deductions would still lower revenue. That being said, the theoretically correct posture is to identify the right base for taxation and then use the rate structure to ensure that the government has enough revenue. If unlimited loss deductions are part of the correct base, Congress could theoretically provide for them

48. See Warren, *Capital Losses*, *supra* note 5, at 311–13.

49. See *supra* Part II.C.

50. See Warren, *Capital Losses*, *supra* note 5, at 303–04.

while making up lost revenue with higher tax rates.⁵¹ Loss limitations should be defended based on traditional income tax ideals like equity and efficiency rather than as an expedient way to maintain the fisc.

IV. TAX-MOTIVATED SELLING AS JUSTIFYING LOSS LIMITS

A. *Introduction*

Taxes affect many (maybe most) investment, business, and even personal decisions. Sometimes, legislatures fully intend to influence decisions via their tax laws. The United States, for example, grants a tax credit with the express purpose of increasing research-and-development expenditures by businesses.⁵² Oftentimes, however, tax effects are not tied to some specific policies. Because of federalism, state-and-local governments levy their own sales taxes. Stores located within the boundaries of the government must collect the tax directly upon each sale. However, the government cannot compel collection by retailers that do not have a sufficient “nexus” to the jurisdiction. Thus, retailers that operate purely “online” have no obligation to collect the sales tax.⁵³ Purchasers understand this difference and may shift some purchases away from traditional stores and toward Internet retailers. The difference between “online” and “in-store” transactions is a side effect of the U.S. constitutional structure rather than the consequence of some deliberate policy.⁵⁴

In both cases (research credit and online sales), taxes affect economic decisions because the taxpayer understands the tax implications. Business managers would not respond to the research credit if they did not understand it; in this case, congressional policy relies on taxpayer understanding and response. Similarly, consumers would not respond to the tax differences between online and in-store purchases if they ignored their different tax treatments. In this case, the response has potentially harmful economic

51. Of course, the tax rhetoric from neither party accommodates such compromise. One side would decry the giveaway to the rich from unlimited loss deductions, while the other would never agree to rate increases.

52. See I.R.C. § 41.

53. The purchaser would still *owe* the sales tax even if the seller does not collect it. As a practical matter, purchasers rarely pay the tax. See ERIKA K. LUNDER & CAROL A. PETTIT, CONG. RESEARCH SERV., R42629, “AMAZON LAWS” AND TAXATION OF INTERNET SALES: CONSTITUTIONAL ANALYSIS 1 (2015), <https://www.fas.org/sgp/crs/misc/R42629.pdf>.

54. See *id.* (summarizing constitutional limitations on sales-tax collections).

consequences. Retailers should compete based on consumer satisfaction rather than tax differences.

As a result, society would be better off if consumers were oblivious to the tax differences between online and in-store shopping. Retailers would compete for market share and capital based on price, quality, convenience, and other market factors rather than taxes. Similar points could be made for other tax distinctions that distort economic decision-making (e.g., the tax distinctions between home renters and owners).

This Article focuses on the distortions that the tax laws have on investment decisions. As described earlier,⁵⁵ the realization doctrine gives taxpayers control over the timing of their taxable gains and deductible losses. Generally speaking, taxpayers will defer gains and accelerate losses. Legislatures understand these incentives and limit the ability of taxpayers to accelerate losses. Most importantly, section 1211 prevents taxpayers from deducting capital losses against ordinary income.

As we have seen, the realization doctrine distorts the Haig-Simons ideals by giving taxpayers control over the timing of their income. Changing asset values are not sufficient to justify tax consequences because we also need some sale or other realization event to trigger tax consequences. The problem with net loss deductions is that they are sometimes, but not always, inappropriate. This Part will try to develop a conceptual understanding of when loss deductions are inappropriate and will argue that—in theory—losses should be denied for tax-motivated selling, but should otherwise be allowed. For example, a taxpayer might have a portfolio of winners and losers. Overall, the portfolio may have increased in value, but the taxpayer sells some of the losers. If the taxpayer sells losers for nontax reasons, a deduction is justified. If a taxpayer sells losers for tax reasons (i.e., to claim a deduction), a deduction is not justified.⁵⁶

This formulation is admittedly theoretical. As a practical rule, it obviously fails. It relies too heavily on subjective motivation to be administrable. Nevertheless, it is an incredibly useful way to measure the costs of loss limits as shown in later Parts of this Article.

B. Examples Where Losses Should Be Limited

Let us imagine the best-case scenario for loss harvesting. The taxpayer buys a single asset for \$100,000. Immediately thereafter, disaster strikes in that the asset falls in value to \$1. Turning lemons into lemonade, she sells the asset for a loss, deducting almost the entire purchase price. Believing the asset to be a good investment, though, she repurchases it for \$1. Then, in a stroke of good luck, the asset rebounds to \$100,000.

55. See *supra* Part III.B.

56. See *infra* Part IV.D.

With perfect foresight, the investor would have simply waited to buy the asset for \$1 rather than suffer the down-and-up blip. Our goal is to measure the benefits of tax planning instead of the investment acumen. The down-and-up blip is a wash economically, but it is the best-case scenario for loss harvesting. In this extreme case, the taxpayer essentially deducted the cost of her investment, but is left with a very low basis of only \$1. When she does sell the asset, nearly the entire amount of the proceeds will be subject to tax.

This extreme case roughly parallels the tax treatment of IRA and 401(k) plans. The taxpayer gets an upfront deduction, but pays tax on the entire amount realized upon the future sale (in the case of the asset) or distribution (in the case of the IRA or 401(k)). It is well known that such treatment is tantamount to exempting the investment return from taxation.⁵⁷ Thus, in the most extreme case of loss harvesting, the taxpayer has avoided paying tax on the gain to the government.⁵⁸ The taxpayer is not being paid to hold capital, but is not being taxed on it either.

We should conclude that the investor's losses would be limited in this case. Her motive was entirely directed at tax savings rather than economic gain. Doctrinally, her loss is easily captured by the wash-sale rules, not the loss limits of section 1211.

Assume that the investor has a somewhat more plausible asset. Every year, it goes up by 37 percent or down by 27 percent, each with equal likelihood. The expected return is 5 percent. Such "binomial" returns do not exist in the real world, but finance scholars and practitioners regularly use them to represent real-world asset returns.⁵⁹ This example does simplify the usual conventions of finance by assuming yearly movements rather than daily or weekly movements in price. Still, the two results fairly represent the annual gain or loss that an investor might have on a risky asset. We will assume that the investor plans to hold the asset for ten years.

Focus for now on the first year. If the investor gains, she does nothing and defers taxation until the end of the ten-year holding period. If the investor loses, she "harvests" her losses by selling the asset. This behavior seems objectionable, but we should identify the objection. If the investor loses in year one, she has a true economic loss. Unlike our extreme example, she has no guarantee of making back the difference. The loss deduction, though, seems

57. See BITTKER & LOKKEN, *FEDERAL TAXATION*, *supra* note 10, at ¶ 62.3.

58. One's response to this finding likely turns on one's tax-policy views. Supporters of vigorous capital-gains taxation will see an intolerable threat. Some theories of taxation, though, indicate that the government earns very little from its taxation of capital. Forgoing the paltry return may not be a catastrophe for the fisc. See David A. Weisbach, *The (Non)Taxation of Risk*, 58 TAX L. REV. 1, 1–2 (2004) ("Income taxes, the [taxation-of-risk] literature argues, do not tax most returns to capital.") [hereinafter Weisbach, *(Non)Taxation*].

59. See, e.g., SIMON BENNINGA, *FINANCIAL MODELING* 127 (3d ed. 2008).

premature as she plans on investing in the asset for ten years. The government could respond to this premature loss by focusing on wash sales. That being said, the wash-sale rules might disrupt her portfolio for only a month out of her ten-year holding period.

The other response of the government would be to require taxpayers to match their losses against gains. As the investor has no gains in year one, she must wait to use her loss. This rule would certainly discourage the investor from harvesting her loss in year one. However, it comes with a significant cost. In year ten, at the end of the investor's "true" holding period, she may well have a loss. Viewed from the date of original purchase, a final, year-ten loss is a real possibility. It would occur with probability of about 38 percent.⁶⁰

Ideally, the government would allow the investor a loss in year ten. She suffered economically and is truly separating herself from the investment. This ideal treatment turns on the taxpayer's motive, something that is hidden from the government. This example, perhaps better than any other, illustrates the difficulty in taxing losses the right way. Unlimited loss recognition is overly generous and invites strategic behavior. Forced matching of losses against gains is overly stingy and forces investors to overstate their income. Later, this Article will propose a method for evaluating the tradeoff between the two possibilities.

C. *Examples of Improperly Limited Losses*

The prior Section described scenarios where we should comfortably disallow losses. A common theme in them was that the investor made a tax-motivated loss sale. In this Section, we will see examples of investors who should receive loss deductions.

An investor might have all of her portfolio invested in a mutual fund that has fallen in value. This investor, perhaps an unlucky retiree, is worse off than when she started. If she sells shares in the mutual fund to pay for consumption, there seems to be no principled reason to deny her a deduction. One might assert that denying the deduction raises revenue, but the government should ideally find revenue from a different source. She seems to represent the best case for granting a deduction against other income (perhaps her pension payments).

Let us assume similar facts as with the unlucky retiree, except that our investor is not a retiree. Instead, she is dissatisfied with the performance of her losing mutual fund and sells it, seeking better performance elsewhere. This investor presents a somewhat weakened case for a net loss deduction. She

60. The investor would simply break even with 5 gain years and 5 loss years. This is because $(1+0.37)^5 + (1-0.37)^5 = 1$. With only 4 or fewer gain years, the investor suffers a loss. The binomial distribution implies that 4 or fewer gain years occur with a probability of about 38 percent.

experienced an economic loss (just like the unlucky retiree). The retiree, however, consumes the proceeds of her sale and cannot hope for any rebound. In contrast, the down, but hopeful investor might end up being a winner in the future.

Still, we must divide between those who deserve loss deduction and those who do not. The ordinary working of the realization doctrine imposes tax consequences upon a sale. Additionally, at the time of the sale, the investor is truly worse off than when she started. Granting a deduction in this case seems not to encourage any wasteful or manipulative behavior since we assume that the investor's motives were based on nontax considerations.

D. Portfolio Losses and Tax Motivation

So far we have seen examples of both appropriate and inappropriate loss deductions. The ability of taxpayers to maintain portfolios of investments could be another potential distortion caused by loss deductions. Rather than investing in a unitary asset (say, mutual fund shares), loss deductions encourage investors to fractionate their holdings amongst several different assets, which could individually be sold for loss even if there is an overall gain. We will see that our usual formulation continues to hold. Tax-motivated sales should not generate loss deductions. Otherwise, taxpayers who sell assets at a loss—even from a portfolio—should be entitled to a deduction.

Suppose now that the taxpayer constructs a portfolio of 100 different assets. Each is individually risky, thus capable of producing gain or loss. Fortunately for the taxpayer, the returns on each asset are unrelated to the others. To illustrate and simplify the analysis, suppose that each asset has a 50 percent chance of increasing by 37 percent and a 50 percent chance of falling by 27 percent. The expected return is a low 5 percent, what we would expect for a risky asset that is unrelated to the rest of the market.⁶¹ Investing in 100 different assets, the taxpayer can be relatively sure of a 5 percent overall return. It would not be astonishing at all for half of the taxpayer's portfolio to fall by 27 percent and for the other half to increase by 37 percent.⁶²

If the taxpayer could freely deduct losses while deferring gains, she would be expected to realize losses on the fifty losers immediately. As each of the losers lost 27 percent, the taxpayer might be able to deduct something like

61. See LAWRENCE A. CUNNINGHAM, *INTRODUCTORY ACCOUNTING, FINANCE & AUDITING FOR LAWYERS* 311–15 (5th ed. 2010) (discussing the capital-asset pricing model) [hereinafter CUNNINGHAM, *INTRODUCTORY ACCOUNTING*].

62. The hypothetical portfolio follows a binomial distribution. About 97 percent of the time, the investor would have between 40 and 60 gains (and the corresponding number of losses). So, we can be pretty sure that the investor will have a portfolio-wide return between a 1 percent loss and an 11 percent gain.

13.5 percent of her portfolio's value in this case. Extending the previous comparison between loss harvesting and tax-exempt investing,⁶³ the taxpayer could be thought to have converted about 13.5 percent of her portfolio to tax-exempt status. As with the case of a single asset,⁶⁴ we see something inappropriate about the loss deduction. The taxpayer does not have an overall economic loss, but is being aided by a large loss deduction.

Nevertheless, this analysis turns completely on the tax-motivated selling. What if the taxpayer sold four assets at random, and by chance all were losers? By assumption, we cannot criticize the taxpayer's motives. Moreover, we should remember that the realization method generally isolates assets by their sale or exchange. A taxpayer might have large unrealized gains and defer tax, and we accept this mismeasurement of income as being inevitable. Moreover, a taxpayer who sells without regard for the tax consequences would—on average—be expected to generate tax consequences that represent her overall changes in wealth. Before selecting four assets at random, our taxpayer would *expect* to sell two winners and two losers. Indeed, taxpayers who sell without regard to tax motives would expect to pay tax on their overall changes in wealth, which is the ideal result under Haig-Simons.⁶⁵ Moreover, as before, granting the investor a deduction does not encourage wasteful selling or manipulation, as our seller had planned to sell regardless of taxation.

E. *Net Loss Deductions and Economic Holding Period*

Based on the analysis above, I would argue that investors should get a net loss deduction at the time they would sell the asset absent tax considerations. So, if an investor would hold an asset for ten years regardless of taxation, then ten years from now should be the day of reckoning⁶⁶ for taxation. I will call this period the investor's "economic holding period" (as opposed to her taxable holding period, which is very much influenced by tax consequences). The economic holding period marks off what the taxpayer would have done absent taxes. Typically, policymakers and commentators

63. Cf. *supra* Part IV.B. (comparing extreme loss harvesting with tax-exempt retirement plans).

64. Cf. *infra* Part V.A.2. (discussing loss harvesting of one asset).

65. See *supra* Part II.A.

66. The word "reckon" is not just a countrified way to say "think" or "believe." One entry of the Oxford English Dictionary defines it as "[t]o count, so as to ascertain the amount or number of; to determine (a number, sum, quantity, and so forth) by counting or calculation; to calculate, work out." *Reckon Definition*, OXFORD ENGLISH DICTIONARY, <http://www.oed.com/view/Entry/159588?rskey=BMYjfp&result=3&isAdvanced=false#eid>. Reckoning is precisely what our taxpayer should do in ten years, sorting out whether he had gain or loss on the asset.

seek tax rules that do not distort or change behaviors that would occur in a world without taxes.⁶⁷ Assigning gain or loss at the end of the economic holding period avoids tax-motivated deferral of gain and acceleration of losses.

This ideal for assigning gain or loss does not, however, guarantee the correct measure of income from a Haig-Simons perspective. We cannot reach that ideal with any system that uses the realization method of taxation. Taxing gain or loss at the end of the economic holding period might result in too much gain or loss in individual cases. That being said, we would not see a bias in favor of too much taxable loss because sales would not be motivated by taxes. Of course, the idea of an "economic holding period" is implausible as an actual rule, unless we force taxpayers to "precommit" to a holding period in advance.⁶⁸ Otherwise, we would be asking our taxpayers to self-report on the hypothetical actions that they would take in a tax-free world that does not exist.

The "economic holding period" idea is very useful, though, in attempting to measure the effects of accelerating and deferring losses. We can readily imagine a taxpayer who buys an asset with the intent to hold it for ten years. Indeed, there must be some real-life investors who would behave this way. In a world that allows for accelerated losses, we could make some assumptions about tax-motivated selling and compare the results against the "correct" holding period of ten years. We could similarly measure the burdens on taxpayers who have legitimate losses at the ten-year mark, but cannot use them because of loss limitations.

The economic-holding-period concept also allows us to measure the economic distortions we have touched on before. If the investor's holding period is fixed ahead of time, then she has no tax incentive to buy risky or safe assets. A substantial literature shows that, with a fixed holding period, the investor can convert income-tax consequences into a fixed charge that does not depend on risk or performance.⁶⁹ Thus, our idealized assumption models a world in which taxes do not distort choices between risky and less risky assets.

67. See, e.g., BITTKER & LOKKEN, *FEDERAL TAXATION*, *supra* note 10, at ¶ 3.2.

68 Precommitment to future tax consequences has some precedence in the Code, particularly in the area of retirement savings. Section 409A limits distributions of deferred compensation to significant external events (like separation from service or disability) and to specific times or schedules specified by the governing document. See I.R.C. § 409A(a)(2)(A). The ubiquitous section 401(k) plan does not allow for distributions on such specific schedules. See I.R.C. § 401(k)(2)(B)(ii). However, it does allow for distributions upon retirement and other events. See I.R.C. § 401(k)(2)(B)(i).

69. See, e.g., Weisbach, *(Non)Taxation*, *supra* note 58, at 2 ("All that is left of capital income to be taxed is the risk-free or pure time value return.").

V. MODELING LOSS HARVESTING

A. Loss Harvesting in a World Without Frictions

Loss harvesting is a tax-motivated, premature loss deduction. In this Part, we will attempt to assign values to loss harvesting opportunities in a world without loss limits. We can also measure the resulting distortions. Only some types of investments—namely risky ones—lead to premature losses. Thus, we should be able to see that the gains on risky assets would be deferred while the losses would be accelerated. This dynamic becomes more pronounced with higher levels of risk, and we can see that uncontrolled loss harvesting would work to subsidize risk taking.

Previously, we saw how investors could capitalize on losses that occurred in the past.⁷⁰ *Ex post*, the loss is like an interest-free loan from the government or perhaps partial tax exemption of the investment. In this Part, we examine the value of loss harvesting *ex ante*, before the losses even arrive. Our motivation for this inquiry is to compare the costs and distortions of loss harvesting with those of statutory loss limits (like section 1211). Our primary economic concern is how loss harvesting affects investment decisions. The correct time for assessing tax-motivated distortions is *ex ante*, when the investor buys the asset.

To assess the *ex ante* value of loss harvesting, we need to understand how tax-motivated investors would approach loss harvesting. Absent transaction costs and legal restrictions, loss harvesting should occur immediately whenever the investment hits a new low price. The investor would costlessly sell the investment, recognize the loss, and immediately repurchase the investment. The investor has incurred no costs and has the same portfolio as before harvesting. Harvesting changes nothing besides giving the investor an immediate tax benefit discussed before.⁷¹

1. Hypothetical Investor and Tax System

Suppose that an investor holds an asset under the following assumptions:

- Basis is \$1.5 million.
- Fair market value is \$1 million.
- Tax rate is 20 percent.
- Despite the \$500,000 loss, our investor wants to keep holding the asset. Our goal here is to measure the benefits from tax-motivated selling. If the investor

70. See *supra* Part IV.B.

71. See *id.*

wanted to sell for economic reasons, we would not consider her to be engaged in loss harvesting. With perfect information and administration, the government would not allow a loss on the asset until ten years have passed.⁷²

- The government does not, however, limit losses. Thus, the investor can fully and immediately deduct any realized losses against income taxed at 20 percent.
- The discount rate for valuing future cash flows is 3 percent.
- The investor is not subject to any wash-sale rules, transaction costs, or other frictions. She may harvest losses and immediately reestablish her prior position in the asset without endangering her loss deductions.

2. *Benefit of Isolated Loss Harvesting*

If the investor harvests the loss today, she receives a deduction of \$500,000, which lowers her current taxes by $0.20 \times \$500,000 = \$100,000$. How much value did the investor add by harvesting the \$500,000 loss? The answer is not ordinarily \$100,000, the value of the current deduction. Since the investor wants to keep holding the asset, she immediately reestablishes her prior position after harvesting the loss. Doing so, the investor takes a new, lower basis in the asset, equal to the current fair market value of \$1 million. This new basis alters her future tax treatment, compared with the prior basis of \$1.5 million. Let us compare the two cases of harvesting and not harvesting, under the assumptions just given (including a \$2 million future sale price).

	(a)	Value of Current Tax Benefit	(b)	Tax Cost in Future Upon Sale for \$2 million
(c) Investor Harvests Loss	(d)	$\$100,000 =$	(f)	$\$200,000 =$
	(e)	$0.20 * (\$1,500,00 \text{ minus } \$1,000,000)$	(g)	$0.20 * (\$2,000,000 \text{ minus } \$1,000,000)$
(h) Investor Does Not Harvest	(i)	-0-	(j)	$\$100,000 =$
			(k)	$0.20 * (\$2,000,000 \text{ minus } \$1,500,000)$

Note that in both cases, the net tax cost across all periods is \$100,000. If the investor does not harvest, she simply pays tax of \$100,000 in a later period. If she does harvest, she gets a current benefit worth \$100,000, but must

72. See *supra* Part IV.E. for a discussion of the ideal time to recognize a loss deduction.

pay \$200,000 later; on a net basis, she pays \$100,000 to the government. However, the cases differ in their timing.

In effect, the investor must “repay” the tax benefit from loss harvesting when she ultimately sells the investment. This repayment may occur many years later, and it is without interest. Therefore, the benefit of harvesting the loss is, in effect, an interest-free loan from the government to the investor for some period. A similar repayment occurs if the investor ultimately sells for a loss.⁷³

Valuing this benefit requires two more inputs. First, we need some discount rate, perhaps the after-tax growth that the investor obtains from low-risk assets. Currently, such a rate is very low, implying that the benefits of loss harvesting are low. Second, we need to know the length of the investor’s true holding period. As argued before, we should not begrudge an investor a loss deduction upon a sale that is not motivated by loss harvesting.⁷⁴ Readers unpersuaded by those arguments should still want taxpayers to face some final day of reckoning, perhaps when the taxpayer dies.⁷⁵

By way of illustration, assume that we believe a loss deduction would be appropriate in ten years and that the after-tax discount rate is 3 percent. The value to the investor is the same as an interest-free, ten-year loan. In this case, the present value is roughly \$26,000.⁷⁶

73. Suppose that the example is just as before except that the investor ultimately sells for \$500,000. The middle column of the chart remains the same. The right column, though, changes.

	(a)	Value of Current Tax Benefit	(b)	Tax Benefit in Future Upon Sale for \$500,00
(c) Investor Harvests Loss	(d)	\$100,000 =	(f)	\$100,000 =
	(e)	0.20 * (\$1,500,000 minus \$1,000,000)	(g)	0.20 * (\$1,000,000 minus \$500,000)
(h) Investor Does Not Harvest	(i)	-0-	(j)	\$200,000 =
			(k)	0.20 * (\$1,500,000 minus \$500,000)

The total tax benefit is \$200,000. Loss harvesting accelerates half of that benefit to the current period.

74. See *supra* Part IV.E.

75. If the taxpayer receives a “stepped-up” basis upon death, then the benefit of harvesting would be permanent. Suppose that the investor harvests the loss as described above in the text, giving her a current tax benefit and a lower basis. Later, if she dies when the asset is worth \$2 million, the unrealized gain escapes taxation. Clearly, loss harvesting exacerbates the revenue loss from the basis-step-up rules. Nevertheless, we should be clear that root cause of the problem in this example is the basis step up rather than loss harvesting.

76. $\$25,919 = 100,000 * (1 - E^{(-0.03 * 10)})$.

3. *Theoretical Maximum Value for Loss Harvesting*

This Subsection will try to establish a theoretical, maximum value of loss harvesting. Here, we will assume that taxpayers can effortlessly convert any decline in value into a tax deduction. Later, however, we will see that transaction costs (or “frictions”) greatly reduce the ability of taxpayers to engage in loss harvesting. Still, this Subsection is important as it illustrates what we might consider to be the worst-case scenario for the distortions caused by loss harvesting.

Recall our earlier observation that loss harvesting is akin to an interest-free loan from the government.⁷⁷ Suppose an investor holds an asset purchased for \$1.5 million, but now worth \$1 million. If the investor harvests a \$500,000 loss this year, she receives a current, but premature tax benefit of $0.20 * \$500,000 = \$100,000$. If that benefit would be timely (from a policy perspective) in ten years, then the investor has effectively received an interest-free loan for ten years. If the discount rate is 3 percent, the net present value of the premature loss deduction is about \$26,000.⁷⁸

The benefit can increase over time, however, as the investor harvests future losses. Expressing the benefit of loss harvesting as a periodic rather than present benefit can more readily accommodate these increases. Interest is the periodic benefit because loss harvesting is effectively an interest-free loan. In our example, we are using a 3 percent rate; for mechanical reasons, it is convenient to express this as prepaid interest of about 2.96 percent.⁷⁹ (Prepaid interest lets us express the benefit of harvesting today as a benefit that starts today rather than next year.) Therefore, the benefit of a \$500,000 loss against a 20 percent tax can be expressed as ten annual payments of \$2,960, starting immediately. There are one current and nine future payments.

Future loss harvesting simply increases the size of the interest-free loan.⁸⁰ Absent frictions, the investor would always harvest losses whenever the asset price hits a new low. Thus, the nine future interest payments would increase as well. Suppose that the current loss of \$500,000 is followed by a new loss of \$100,000 next year. The investor would have a benefit of \$2,960 in the current year. In the following nine years, the amount of the interest-free loan increases from \$100,000 (20 percent of \$500,000) to \$120,000 (20 percent of the total loss of \$600,000). The annual benefit in the remaining three years would be \$3,552.

77. See *supra* Part IV.B.

78. See *supra* note 76.

79. $1 - \text{Exp}[-.03]$.

80. I assume that the interest-free loan increases no more frequently than annually. The investor might realize a mid-year loss immediately, but will not enjoy any benefit from it until she files her annual tax return.

More generally, at any point in time, relentless harvesting gives the investor an annual benefit equal to:

- The prepaid interest rate of 2.96 percent, times
- The tax rate of 20 percent, times
- The excess of the initial purchase price (\$1.5 million) over the all-time low value since the investor bought the asset (\$1 million or \$900,000 in prior examples).

The third bullet above is the same form of payment as a “fixed lookback put option.”⁸¹ Such an option allows the holder to identify an all-time minimum value by “looking back” at the price of the asset over the period of the option. The holder then receives the difference between some contractually established “strike price” and the identified minimum. In our case, the “strike price” is the initial purchase price of \$1.5 million.

Loss harvesting actually gives our investor ten separate fixed lookback put options, one for each year of ownership. The first one is exercisable today, and the other nine are exercisable thereafter in one-year intervals. The final period (year ten) has no associated option as we assumed that year ten is the appropriate time for assigning tax consequences. Even though the investor has ten of these options, each is relatively small. The first two bullet points above indicate that each little option covers 20 percent of 2.96 percent, or about 0.6 percent of the asset.

The computer easily crunches the numbers for us to find the value of the options, so long as we identify the volatility (or riskiness) of the asset. If the volatility is a moderate 30 percent, then loss harvesting in our example produces a total value of about \$43,000.⁸² Most of this value (about \$26,000) is attributable to harvesting the current loss of \$500,000. The remaining \$17,000 or so of value is attributable to the ability to harvest future losses.⁸³

81. Cf. JOHN C. HULL, *OPTIONS, FUTURES, AND OTHER DERIVATIVES* 583 (8th ed. 2012) [hereinafter HULL, *OPTIONS*] (“For a *fixed lookback put option*, the payoff is the same as a regular European put option except that the final asset price is replaced by the minimum asset price achieved during the life of the option.”). Hull described a European put option as giving the holder the excess, if any, of the strike price less the final asset price. *Id.* at 194–96.

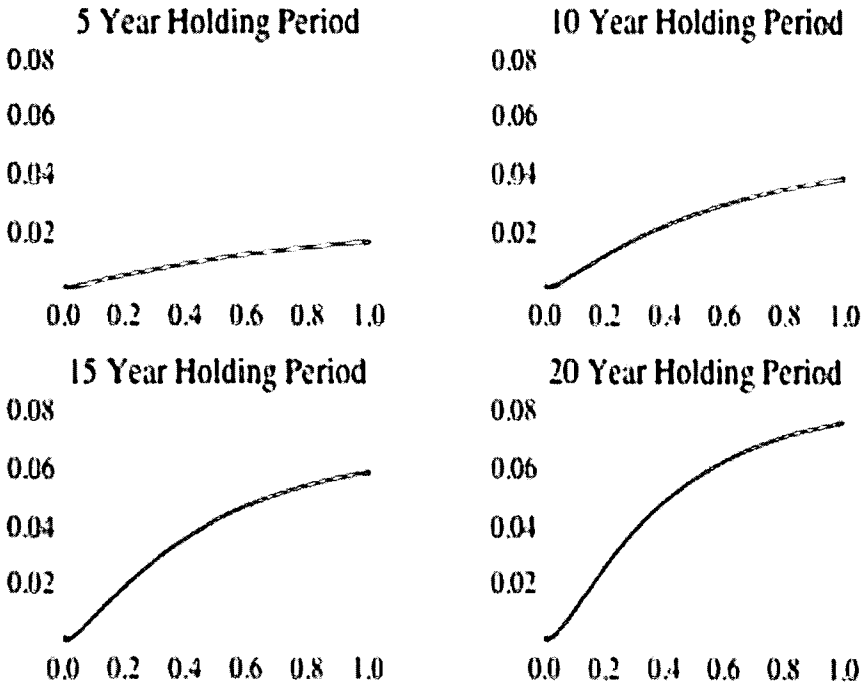
82. I used Mathematica for this calculation. If you want to check for yourself, the function was:

```
FinancialDerivative[{"LookbackFixed", "European", "Put"}, {"StrikePrice" -> 1500000, "Expiration" -> #, "MinSoFar" -> 1000000}, {"InterestRate" -> 0.03, "Volatility" -> 0.30, "CurrentPrice" -> 1000000}] & /@ Range[0, 9] * .2 * (1 - Exp[-.03]) / Total / Round, which equals $42,721.
```

83. In Mathematica, we obtain future loss harvesting by setting the strike price to the current price of \$1 million. With this change, the formula in note 82

In the example as developed so far, there is arguably nothing wrong with the investor's behavior. She has, after all, suffered a \$500,000 loss. As her loss-harvesting activity is assumed to be costless, there is nothing economically wasteful about her activities. We should be concerned with how the ability to harvest loss affects a taxpayer's investment choices. From an *ex ante* perspective, then, the ability to harvest future losses may be the most interesting part of loss harvesting.

The following graphs show the relationship between risk and the value of loss harvesting. In each case, the horizontal axis represents volatility (ranging from 0 percent to 100 percent) and the vertical axis represents the portion of the initial asset value that the investor can reap from loss harvesting. The maximum percentage is about 7.6 percent, obtained from a 20-year holding period of an asset with 100 percent volatility. Each case assumes a 3 percent interest rate and 20 percent tax rate.



We have developed a powerful tool for measuring the value of loss harvesting, the problem that we seek to curtail with loss limits. Nevertheless, it will dramatically overstate the value of loss harvesting. The standard

produces a value of \$16,802. Harvesting the existing \$500,000 loss produces a benefit of $500000 \cdot .2 \cdot (1 - \text{Exp}[10 \cdot -.03]) // \text{Round} = \$25,918$. Only a rounding error separates the sum of these two components from the total obtained in note 82.

lookback models used above assume that investors can instantaneously seize upon any new minimum in asset value.⁸⁴ If investors can check prices only weekly, monthly, or otherwise, they will miss out on harvesting opportunities.⁸⁵ More complex models do exist to account for situations where investors cannot,⁸⁶ but they are not standard parts of the literature.⁸⁷ Moreover, in the real world, investors will likely face costs in harvesting their losses, as discussed below. Before turning to such costs, we will compare the idealized value of loss harvesting with the costs of loss limitations.

B. Comparing the Cost of Loss Limitations

In Part IV.E., we set our normative baseline as holding that investors should face tax consequences at the end of some “economic holding period” that is independent of tax considerations. Taxing assets at this time avoids any distortions caused by tax-motivated selling. As a result, the government should, as a normative matter, allow investors to take loss deductions at this time, even if they have no offsetting gain. Next, we saw how loss harvesting distorts this normative ideal. Aggressive, frictionless loss harvesting was discussed in Part V.A. In Part V.C., we will introduce transaction costs and other frictions that can dramatically lower the benefits (and distortions) of loss harvesting. Nevertheless, benefits remained from loss harvesting. In either case, we can justify the loss limitations of section 1211.

84. See HULL, *OPTIONS*, *supra* note 81, at 584 (“The formulas above assume that the asset price is observed continuously.”).

85. These models may not even be accurate to describe the trading activities of the most sophisticated financial institutions. If the investor checks prices a few times a day, the models will significantly overstate values. See Michael Kelly & James Brown, *A New Binomial Model for Discrete Lookback Options Using Mathematica*, WOLFRAM LIBRARY ARCHIVE, <http://library.wolfram.com/infocenter/Conferences/6479/> (stating that the models “significantly overprice the true value of the market *Lookbacks*, because the actual *Lookback* options were determined from asset prices valued at discrete intervals of a fraction of a day.”). Investors, even quite wealthy ones, are unlikely to engage in daily examination.

86. Alternatives account for discrete intervals, but they add significant complexity. *Cf. id.* (proposing an alternative based on binomial pricing trees); HULL, *OPTIONS*, *supra* note 81, at 584 (referring to adjustments that can be made to the standard models).

87. In other words, they are not in the Hull book, which is commonly referred to as “the Bible” of derivatives. See, e.g., Bernard Simon, *John Hull: Cautious of Creating Too Much Complexity*, FIN. TIMES (June 16, 2008), <http://on.ft.com/20ib0XR> (“[Hull’s] seminal book *Options, Futures and Other Derivatives* . . . is widely regarded as the bible of the subject.”). The fact that the Bible of traders does not cover such esoterica would imply that a law review article should not either.

However, this control comes at its own cost if our investor has losses at the end of the economic holding period. The government cannot create a legal rule based on an abstraction like economic holding period, and it must limit losses whenever they occur. Thus, an investor may have a legitimate loss that section 1211 disallows. As we saw before, section 1211 does not completely disallow net capital losses but allows for varying degrees of carryback and carryforward by investors. The taxpayer may not have other gains, and the time value of money will erode the value of the loss to the taxpayer.⁸⁸

We will start by assuming that the loss disallowance rule results in permanent disallowance. This is an extreme assumption, but recall that we started with an extreme assumption about the nature of loss harvesting earlier as well.⁸⁹ To examine the costs of loss disallowance, let us assume that an investor buys an asset for \$1 million. If the asset gains in value and she sells at the end of her economic holding period, then she pays tax on the gain as she should.⁹⁰ If the asset decreases in value, however, she is denied her rightful loss. If the tax rate is 20 percent, she should receive a tax benefit worth \$20 for every \$100 of loss suffered. The loss disallowance works the same as if the government held the following two claims:

- *Tax Claim:* This is the theoretically correct tax claim whereby the government recognizes all gain and loss at the end of the economic holding period. For example, the government shares in 20 percent of all gain or loss.
- *Put Option:* The government holds a cash-settled put option on the portion of the asset reflecting the tax rate (e.g., 20 percent of the asset).

A few words of background on put options are in order. A put option gives the holder the right, but not the obligation, to sell an asset for a

88. Carryforwards are indefinite for individuals, but limited to five years for corporations. See I.R.C. § 1212. Individuals have no tax incentive to trigger gain to use a preexisting loss. A preexisting loss may, however, facilitate a sale made for economic reasons.

89. See *supra* Part IV.B.

90. A further complication, not considered by this Article, is that of “lock in.” It is the inverse of the idea that investors sell too quickly when they have a loss. When they have gain, they may wish to defer paying tax on it until after the end of the economic holding period. See, e.g., RICHARD SCHMALBECK & LAWRENCE ZELENAK, FEDERAL INCOME TAXATION, 892–94 (3d ed. 2011) [hereinafter SCHMALBECK & ZELENAK, TAXATION] (discussing lock-in).

contractually established price at a certain time in the future.⁹¹ Thus, the holder is protected from the decline in an asset price because she is assured of selling at a certain price. One can also buy a put option to speculate on the belief that the asset will decline in value. A speculator (who does not actually own the stock) may prefer a “cash settled” option that simply pays her the difference between the contractually established price (the “strike” or “exercise” price) over the market price of the asset at the end of the option.⁹² Similarly, governments prefer payment in cash. In our case (“put option” above), the option expires at the end of the economic holding period, and the strike price is the basis of the asset.

In Part V.A.3., we saw that volatility or risk increased the value of future loss harvesting. In effect, the ability to harvest losses subsidizes risk taking. With loss limits, the government eliminates harvesting opportunities, but it also burdens risk taking. Standard pricing models, though, show that put options become more valuable as risk levels increase.⁹³ In contrast, the “tax claim” above does not discriminate based on risk taking.⁹⁴

Thus, both loss harvesting and loss limits impose costs, with one subsidizing risk and the other burdening it. Governments have a policy choice (allow loss harvesting or limit loss), and should choose the least costly of the two options. We can compare the cost of the two under the following assumptions:

- The cost of loss harvesting follows the model described above, which values the inappropriate benefits granted to investors.⁹⁵ In other words, the cost is the value of the benefits conveyed upon investors.
- The cost of loss limits follows standard put option pricing, which values the inappropriate benefit given to the government. In other words, the cost is the value of the burdens imposed on investors.
- Loss limits eliminate loss harvesting. This assumption overstates the benefits of loss limits, because investors will periodically want to harvest losses to offset any gains that they have in their portfolios.⁹⁶

91. See HULL, *OPTIONS*, *supra* note 81, at 806.

92. See *id.* at 794.

93. See *id.* at 215.

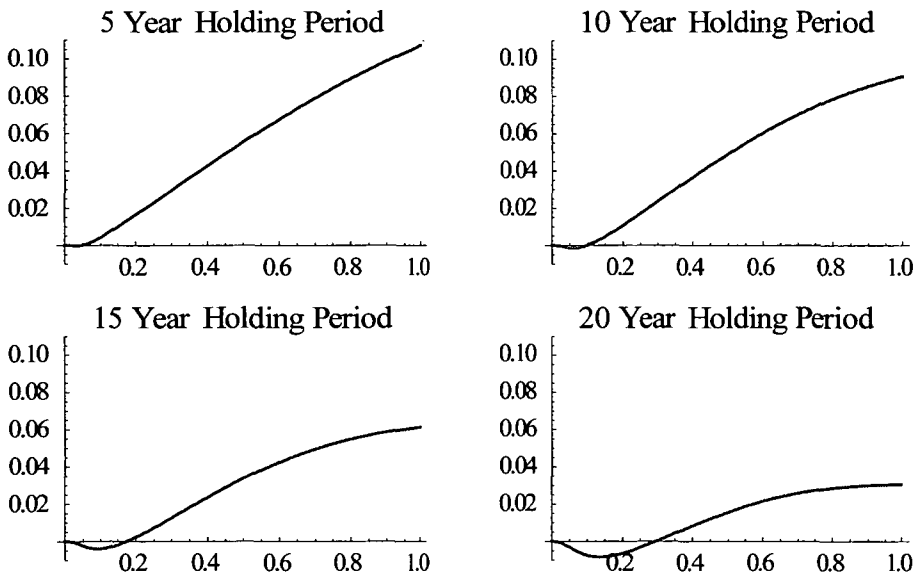
94. See *supra* note 58.

95. See *supra* Part V.A.

96. See Horvitz, *Tax-Loss Harvesting*, *supra* note 9, at 323.

- Subtracting the cost of loss harvesting from the cost of loss limits shows which one is worse. If loss limits have low costs and loss harvesting has high costs, then the difference between the two is negative. In this case, imposing loss limits is the preferred policy outcome. In contrast, if loss limits have high costs and loss harvesting has low costs, then the difference between the two is positive. In this case, allowing loss harvesting is the preferred policy outcome.

The graphs below show the difference suggested by the third bullet point.



The four different graphs show the relative costs for four different holding periods. In each case, the horizontal axis represents volatility (ranging from 0 percent to 100 percent). The vertical axis is the net cost of loss limits, defined as the cost of loss limits minus the cost of loss harvesting. The number itself is a percentage of the asset value (e.g., 0.10 is 10 percent of the initial value of the asset). Positive numbers show a net cost to loss limits, whereas negative numbers show a net benefit.

Based on this model, loss limits impose a net cost in almost all scenarios. Only with long holding periods (fifteen or twenty years) and low volatility (around 20 percent) do loss limits produce a net benefit under the model. We should also note, however, that the net costs fall steadily with longer holding periods.

C. *Restraints on Loss Harvesting*

In our idealized world, loss limits appear to be a costly solution to the problem of loss harvesting. Both this and the next Section explore loss harvesting in more depth by making it more realistic. Previously, we assumed that investors could harvest losses immediately and costlessly. However, we will now consider restraints on such behavior.

1. *Tax Arbitrage*

We will consider loss harvesting as a form of tax arbitrage. In general terms, “arbitrage” refers to low-risk profits that require no net investment.⁹⁷ Here is a straightforward example using exchange rates:

- In London, traders can buy and sell 1.50 U.S. dollars (USD) for 1 pound sterling (GBP).
- In New York, traders can buy and sell 0.65 GBP for 1 USD.

The two markets are mispriced. One can buy pounds more cheaply in London than in New York. Arbitrageurs can earn easy, low-risk profits in the following way:

- In London, buy pounds with dollars. For example, buy 1300 GBP for 1950 USD.
- In New York, sell pounds for dollars. For example, sell 1300 GBP for 2000 USD.

By placing both orders simultaneously, the arbitrageur need not invest any capital in the transaction. Since she is buying and selling the same amount of pounds, she has no risk. All that happens is that the arbitrageur has an extra 50 USD. Financial arbitrageurs discipline markets by ensuring that mispricings like this never arise. If the pound-to-dollar exchange rate were this distorted, arbitrageurs would pounce on it immediately until their resulting demand altered the market prices.

97. See ZVIBODIE, ALEX KANE & ALAN J. MARCUS, INVESTMENTS 349 (6th ed. 2005) (“An arbitrage opportunity arises when an investor can earn riskless profits without making a net investment.”); HULL, OPTIONS, *supra* note 81, at 791 (defining “arbitrage” as “[a] trading strategy that takes advantage of two or more securities being mispriced relative to each other”).

Tax arbitrage is a similar concept except that the low-risk profit arises from discrepancies in tax regimes rather than market prices.⁹⁸ The idealized loss harvesting of the prior Section is clearly a form of tax arbitrage. The investor gets a risk-free profit without changing her economic position or paying any costs. One significant difference between tax arbitrage and financial arbitrage is that financial arbitrage disappears rapidly with use. As traders exploit the difference between London and New York currency markets, they affect the relative supply and demand in the markets, causing their prices to converge. Indeed, the financial literature usually assumes that financial arbitrage does not exist.⁹⁹

2. *Implicit Taxes*

Tax arbitrage exists because of tax rules, not market conditions. The government has no quick mechanism for protecting itself. Market forces may, however, work to incorporate the value of tax arbitrage items in asset prices, yields, or both. Tax-favored investments, like tax-exempt municipal bonds,¹⁰⁰ can have their prices bid up in the market to reflect their tax advantages. Similarly, issuers may be able to lower the returns that they must offer on tax-favored assets. The higher price or lower yield could be thought of as an “implicit tax” on tax-favored investments.¹⁰¹ The rate of the implicit tax is simply the difference in return from the tax-favored investment (like a municipal bond) and the return from a benchmark asset (like a corporate bond of similar risk).¹⁰²

The presence of implicit taxes may undercut some of the concern that unlimited loss deductions could create problems of equity and income measurement.¹⁰³ In a world with unlimited loss deductions, some assets would be very suited to loss harvesting. Stocks in companies that have just had an initial public offering would be very suited to loss harvesting. They are riskier than other assets, creating the possibilities of loss. Additionally, they are

98. See MYRON S. SCHOLES ET AL., *TAXES & BUSINESS STRATEGY* 147 (4th ed. 2008) [hereinafter SCHOLES, WOLFSON ET AL., *TAXES*].

99. See HULL, *OPTIONS*, *supra* note 81, at 253–55, 804.

100. Cf. I.R.C. § 103 (“[G]ross income does not include interest on any State or local bond.”).

101. Cf. SCHOLES ET AL., *TAXES*, *supra* note 98, at 575 (“Implicit taxes arise because the before-tax investment returns available on tax-favored assets are less than those available on tax-disfavored assets. Taxpayers wishing to obtain the tax-favored treatment offered by the investment bid up the price of the investment, thus lowering the pre-tax rate of return.”).

102. See *id.*

103. See *supra* Part IV.B.

publicly traded, making it easy to buy and sell the asset. Less risky and less marketable assets do not present the same opportunities. Thus, start-up IPOs might be bid up to reflect loss harvesting. Investors who harvest losses are not necessarily getting a better result than what they would achieve with assets not suitable to loss harvesting, just as investors in tax-exempt bonds might not be getting a better deal than investors in taxable bonds.

Even if the benefits of loss harvesting are destroyed by implicit taxes, we should remain concerned about the economic distortions caused by unlimited loss deductions. Again, the comparison with municipal bonds is useful. The continued tax exemption for municipal bonds likely reflects a policy of subsidizing local governments.¹⁰⁴ This policy is successful only to the extent that the exemption generates a lower cost of borrowing for local governments. In other words, the policy works because of implicit taxes,¹⁰⁵ and it reflects some desire to reallocate capital away from other sectors and into the hands of local governments. As for loss deductions, they would be most useful for risky and marketable assets. Thus, unlimited loss deductions should result in some reallocation of capital to such assets. We will assume that the government does not desire to tinker with markets in this way using loss harvesting. Perhaps the best evidence for this proposition is the presence of legal restrictions like the wash-sale and loss-limit rules. Still, there is some support for the notion that governments could use loss harvesting to encourage entrepreneurial risk taking.¹⁰⁶

3. *Loss Limitations*

Tax systems do not automatically provide a benefit for all realized losses as we saw above. To recap what we have covered before, U.S. law requires taxpayers to match any capital losses against capital gains. To the extent capital losses exceed capital gains, individual investors can deduct \$3,000 of losses against other, "ordinary" income like compensation. For an individual paying a combined federal and state rate of 40 percent, the benefit is \$1200. Any remaining capital losses can be carried forward to later taxable years. U.S. individuals (unlike U.S. corporations) cannot carry back unused losses and offset them against prior-year capital gains.

Loss limitations potentially reduce the value of loss harvesting by deferring the tax benefit of the realized loss. Absent other frictions (like transaction costs and wash-sale restrictions), loss limitations do not alter

104. See generally SCHMALBECK & ZELENAK, *TAXATION*, *supra* note 90, at 698–700.

105. See *id.*

106. See Warren, *Capital Losses*, *supra* note 5, at 297–300.

investor behavior. Even if losses are deferred, investors have every incentive to harvest them immediately and lock in their value for future use.

Suppose that the investor could harvest a current loss of \$500,000. To keep her investments straight, we will call the asset with the loss the "loss asset." Now, suppose that she cannot use the loss today but expects to be able to use it in five years,¹⁰⁷ offsetting gains in another asset that will be taxed at 20 percent. Let us call the other asset the "gain asset." Harvesting the loss today produces a tax benefit of \$100,000 in five years. Why not simply wait five years and harvest the loss when she needs it (i.e., when she sells the gain asset)? By waiting, the investor may see the loss disappear if the loss asset increases in value. Indeed, the investor wants the loss asset to increase in value and indeed expects it to increase;¹⁰⁸ otherwise, she would not want to hold it as a continued investment. However, if loss asset falls in value again, the investor can simply harvest those further losses in the future. She loses nothing by systematically harvesting losses as they arise.

Still, the loss limitations do reduce the value of harvesting. Before, we assumed that the tax system should ideally recognize the deduction in ten years. In our current example, the investor must wait five years before recognizing her loss. Nevertheless, she gets her loss five years early. Before we treated loss harvesting like an interest-free loan. Using that same model now, the investor has an interest-free loan that begins in five years and ends in ten years. With a 3 percent discount rate, her value is about \$12,000,¹⁰⁹ less than half the value we calculated before.¹¹⁰

We should note that tax planning that far ahead is inherently uncertain. Our foremost concern is whether the investor could even use losses harvested in the future. U.S. law, for example, largely forces investors to match capital losses against capital gains. Without capital gains, the investor cannot deduct the losses. The investor would have no reason to realize capital gains just to allow for a loss deduction. Doing so results in no net tax liability—the same as if the investor had not realized the gain at all—but also makes the loss unavailable to offset future gains. In general, investors should realize gains

107. Such prescience may seem contrived, but it is quite possible for investors to have some reasonable expectation of future capital gain. The investor may have other assets that have appreciated but that will not be sold until a future date that the investor knows about. For example, the investor might be a successful entrepreneur who expects to sell her business at a large profit in five years.

108. Remember, we defined loss harvesting to mean tax-motivated selling of depreciated assets. *See supra* note 43 (quoting Horvitz, *Tax-Loss Harvesting*, *supra* note 9, at 323). If the investor was motivated to sell by economic considerations, we would not consider the sale to be loss harvesting and would consider a current deduction appropriate.

109. $100,000 * (E^{(-0.03*5)} - E^{(-0.03*10)})$.

110. *Cf. supra* note 76 and accompanying text (valuing the benefit at about \$26,000).

only for nontax reasons, such as the need for cash or the desire to change investments. If these nontax reasons do not arise, the investor should not realize gains and cannot use losses.

Some investors, however, may expect regular gains in the future. Examples include investors who are slowly liquidating a large, appreciated position in stock and investors pursuing active management styles. These investors may reasonably assume that they can immediately use any losses generated in the future. U.S. corporations (unlike individuals) can carry losses back for two years. Thus, a U.S. corporation with large capital gains in 2011 could reasonably expect to be able to use any losses generated in 2011, 2012, or 2013.

4. *Wash-Sale Rules*

The tax laws disrupt loss harvesting by limiting an investor's portfolio choices shortly before and after harvesting a loss. U.S. law, for example, contains a set of "wash-sale rules" that disallows a loss on stock or securities if the investor acquires "substantially identical stock or securities" thirty days before or after harvesting the day the loss was harvested. So, the investor could replace the investment thirty-one days after loss harvesting, going thirty days without the investment. Alternatively, the investor could preemptively replace the investment thirty-one days before harvesting, going thirty days with double the investment. Conceptually, U.S. law disrupts the investor's preferred asset allocation as a price of harvesting the loss.¹¹¹

The investor could value the disruption by comparing the optimal portfolio with the one coerced by the wash-sale rules. We are focusing on tax planning, not investment performance. Thus, before loss harvesting, we should assume that the investor has the portfolio she wants. In the terms of investment management, her pre-harvesting portfolio maximizes her expected return, adjusted for her risk preferences. Investing is a tradeoff between risk and return, and we assume that the investor has chosen the right tradeoff for herself.¹¹²

Complying with the wash-sale rules disrupts this tradeoff for thirty days. The investor sells the loss asset and substitutes some other, less desirable asset for thirty days. For example, the investor might hold some risky stock that has recently lost value, but that she believes will soon rebound. A simple way of harvesting the loss and complying with the wash-sale rules would be to sell the stock and invest the proceeds in a low-risk money market fund for thirty days. After the thirty days have passed, the investor reestablishes her position in the risky stock.

111. *See supra* IV.B.

112. Alternatively, we might say that the investor thinks she has chosen the right tradeoff.

From an *ex ante* perspective, she cannot know the precise cost of not holding the stock for thirty days. During that time, it might go up or down in value. If the investor could time the market, she would certainly do so. We assume, however, that the investor wants to hold the stock and that she expects some superior rate of return over time (including the thirty-day wash-sale period). Valuing the cost of this disruption requires us to examine the investor's risk preferences and to compare the expected risk and return of the loss asset and the substitute asset.

Despite the difficult nature of this inquiry, the financial management literature suggests a method for valuing this disruption.¹¹³ The investor's utility from a portfolio might be expressed as a function of the expected rate of return less some penalty for the risk of the portfolio. This method is known as "mean variance optimization" (MVO).¹¹⁴ The magnitude of the penalty depends on the investor's subjective risk preferences and the objective riskiness of the portfolio.¹¹⁵ The MVO cost from harvesting, then, is her lost utility over the thirty-day wash-sale period. The precise MVO cost depends on five inputs (expected return of both portfolios, risk of both portfolios, and the investor's risk aversion). A cost of 0.1 percent of the loss-harvested asset's value is a plausible estimate.¹¹⁶

113. The following discussion comes largely from William F. Sharpe et al., *Asset Allocation*, in *MANAGING INVESTMENT PORTFOLIOS: A DYNAMIC PROCESS* 241–42 (John L. Maginn et al. eds., 3d ed. 2007).

114. *See id.*

115. MVO posits that the investor's utility from portfolio *m* is $U_m = E(R_m) - 1/2 * R_A * \sigma^2_m$, where $E(R_m)$ is the expected return on portfolio *m*, R_A is the individual investor's subjectively determined risk aversion, and σ^2_m is the variance of portfolio *m*. The term $1/2 * R_A * \sigma^2_m$ is the "penalty" for risk. *See id.* A convenient aspect of this model is that it expresses utility as a risk-adjusted return. We can measure the difference between an optimal portfolio (i.e., the one the investor wants) and a suboptimal portfolio (e.g., one coerced by the wash-sale rules).

116. Suppose that our investor is moderately aggressive toward risk, has an index of 3, and invests half of her wealth in the stock market and the other half in risk-free assets. *Cf. id.* at 242 (associating an index of 4 with moderate risk aversion). More aggressive investors will be more likely to have more losses for harvesting. We next suppose that the investor must forgo any risk premium for the 30-day wash-sale period. The stock market might have a risk premium of 6 percent, riskiness (standard deviation) of 20 percent, and a risk-free rate of 3 percent. The investor's optimal portfolio (50/50 stocks and risk-free assets) has expected return of 6 percent and riskiness (measured by standard deviation) of 10 percent. Her MVO utility is $6\% - 1/2 * 3 * (.10)^2 = 4.5\%$. The risk-free asset, in contrast, gives MVO utility of only 3 percent. To the extent the investor forgoes the risk premium, she loses MVO utility of 1.5 percent. Over 30 days, the cost would be roughly 0.125 percent.

Above, we considered loss harvesting an asset worth \$1 million. Depending on the scenario, the loss produced net benefits of \$26,000 and \$12,000.¹¹⁷ The investor cleared the 0.1 percent hurdle that was just suggested, but we should note two facts. First, the loss was a very large one, equal to 50 percent of the asset's current value. Second, if the benefit is \$12,000, our investor just barely clears the 0.1 percent hurdle implied by the MVO analysis.

The 0.1 percent hurdle should strike us as being reasonable. We assume that our investor wants to hold the asset. If that is the case, she might reasonably value the lost opportunity for gain over the next thirty days at 0.1 percent. Behavioral finance and regret avoidance support this view.¹¹⁸ How would our investor feel if she harvested the loss, gained a net tax benefit of \$26,000, but saw the asset increase by 1 percent (or \$100,000) over the next thirty days?

We do not necessarily need to take these numbers as hard truth to see the underlying point. The wash-sale rules impose a significant friction on the type of ruthless and effortless harvesting that we previously considered. Still, the disruptions described above may be somewhat overstated. Tax planners and investment bankers have developed sophisticated strategies using derivatives that arguably allow for loss harvesting without the risks and disruptions described above.¹¹⁹ Investment managers might also develop ways to enhance the attractiveness of the alternative portfolio that the wash-sale rules coerce. Of course, such strategies involve other frictions, namely transaction costs like fees and commissions.

5. *Transaction Costs and Other Frictions*

Above, we assumed that investors would harvest their losses relentlessly, immediately, and costlessly. The tax planning literature would say that this a "frictionless" world, perhaps drawing an analogy between idealized tax planning and idealized physics. Transaction costs and legal restrictions make such automatic harvesting unwise. The investor may have costs in executing the trades or monitoring the price of the stock (as monitoring is needed to seize upon a new low price). The tax laws may disallow losses on wash sales,¹²⁰ forcing the investor to wait before repurchasing the sold investment. The investor may not be able to use any deduction until a future

117. See *supra* Part V.A.2.

118. See generally W. Sean Cleary et al., *Market Efficiency, in INVESTMENTS: PRINCIPLES OF PORTFOLIO AND EQUITY ANALYSIS*, 131–32 (Michael G. McMillan et al. eds., 2011).

119. See Schizer, *Wash Sale Rules*, *supra* note 36.

120. See *supra* Part V.C.4.

year.¹²¹ This Section attempts to describe when investors should harvest losses notwithstanding the presence of frictions.

To harvest losses effectively, the investor must obviously keep track of the tax basis (usually cost) and its current market value. More significantly, the investor must keep apprised of her tax bracket and her ability to use losses (now and in the future) in order to determine the size of the benefits from loss harvesting. In addition, the investor must be able to estimate and quantify the disruptions that come from complying with restrictions like the wash-sale rules. Such activities consume time and resources that add costs to loss harvesting.

This Section and the next will generally assume that the investor examines her assets for potential loss harvesting once a year. One could think of loss harvesting as year-end tax planning that is best done after the investor knows her current tax situation. Additionally, annual monitoring would be less resource intensive. The cost of less frequent monitoring is that the investor may not harvest losses from an intra-year dip in prices.

The investor faces several other costs as well. In order to harvest a loss, she must sell the loss asset and pay brokerage fees for the sale. She would also need to pay brokerage fees for purchasing the asset after thirty days have passed. One can imagine various other types of costs as well, like coordinating with accountants and investment advisors. Simply understanding the rules for deducting losses is costly. For the sake of analysis, this Part will assume that loss harvesting costs the investor 0.2 percent of the asset's fair market value.

D. Valuing Loss Harvesting Under Frictions

1. The Difficulty of Loss Harvesting Under Frictions

The problem facing investors is knowing when to harvest losses. Absent transaction costs, the decision is easy: harvest losses whenever the asset price hits a new low, measured over the investor's holding period. Introducing frictions complicates this decision greatly. This Section begins to address this problem with simple time-value-of-money calculations.

Previously, we focused on the benefit of harvesting a loss in isolation of all other years. By prematurely recognizing a loss, the investor effectively receives an interest-free loan from the government. The period of the loan runs from today until loss recognition is appropriate. Earlier in this Article, I argued that loss recognition is appropriate when the investor would sell absent tax considerations. The analysis in this Part, however, can be adapted to other normative frameworks that identify the time when loss recognition is appropriate. What is important, in this Part, is that the investor is getting her loss deduction earlier than she should.

121. See *supra* Part II.D.

Under the main example of loss harvesting in this Part, the benefit of this loss was valued at about \$26,000. Later, we saw that loss harvesting entails frictions from transaction costs and disruptions from wash-sale rules, and I suggested that we might value those costs, in total, at perhaps 2 percent of the value of the asset. In our case, 2 percent of the value is \$20,000. So, we might think that the investor gains the difference, or \$6,000, by harvesting the loss this year.

Nevertheless, something important is missing from this interest-free loan analysis. It isolates the current benefits of loss harvesting but ignores the effects on later years. By harvesting a loss this year, future loss harvesting becomes less valuable. In a prior example, we assumed that the investor currently harvested a loss of \$500,000 by selling an asset worth \$1 million. Current-year loss harvesting reduces the value of future-year loss harvesting. Following a current-year loss harvest, the investor can harvest future losses only if the asset falls below \$1 million. Sometimes the investor would be better off waiting, even if current-year harvesting appears attractive. Our goal now is to develop rules for when the tax-motivated investor should or should not harvest losses.

2. *When Harvesting Is Clearly Advisable or Inadvisable*

First, let us be clear on when loss harvesting should not take place. Suppose that the example is the same as before¹²² in all respects except that the investor's basis (i.e., the original cost of purchase) is \$1.3 million. The loss is now \$300,000. Using the interest-free loan method from before, the benefit of harvesting is \$15,551,¹²³ a benefit less than the assumed \$20,000 cost. The investor should never harvest if the assumed interest-free loan is worth less than the transaction costs. Under our assumptions, any loss less than \$385,830 would not be worth the \$20,000 cost of harvesting it.¹²⁴ Of course, there is nothing special about the \$20,000 cost (based the idea of a 0.2 percent cost for harvesting losses). Lower (or higher) costs would result in more (or less) loss harvesting.

Second, we can develop a rule for when loss harvesting is always advisable. The analysis is a bit more complex, as it is based on the interest-free loan model. Remember, though, that the benefit of an interest-free loan is essentially the interest that you could earn. Waiting to harvest a loss until next year has a minimum cost as the investor loses the benefit of one year of the interest-free loan. Suppose that our example was the same as before except the

122. Cf. *supra* Part V.A.1. (describing hypothetical investor and tax system).

123. The investor has an interest-free loan that lasts for 10 years, valued at a 3 percent discount rate. The "principal" of the loan is \$400,000 times the tax rate of 20 percent or \$80,000. The value is \$15,551 = $(1 - \text{Exp}[-.03 \cdot 10]) \cdot .2 \cdot 300000$.

124. The isolated value of loss harvesting, or \$26,000.

investor's basis (i.e., the original cost of purchase) is \$5 million. The loss is now \$4 million. Triggering this loss gives the investor an interest-free loan of \$800,000. As the discount rate is 3 percent, the one-year benefit of loss harvesting is roughly \$24,000, an amount greater than the assumed cost of \$20,000. So long as the transaction costs are lower than the value of a one-year interest-free loan, the investor should harvest losses. In our case, the threshold loss would be about \$3.8 million.¹²⁵ Lower costs of harvesting losses would imply a lower threshold.

We have gained some traction on the loss harvesting decision. In our hypothetical, the investor would never harvest a loss lower than about \$390,000 and would automatically harvest a loss more than about \$3.8 million. However, the range in between is rather wide. How should an investor with a loss of perhaps \$500,000 make her decision?

3. *Guiding the Exercise Decision with Black-Scholes*

We have not yet developed a generally applicable rule for when to harvest losses. Nevertheless, we have identified some of the costs and benefits of harvesting this year versus waiting. Suppose our investor has a \$500,000 loss that she could harvest. Is she better off harvesting it now or waiting until the future? By waiting, she avoids transaction costs this year. Thus, if she waits and the loss grows, she might harvest the bigger loss while paying a single set of transaction costs (next year) rather than in both years. However, if she waits, the loss might evaporate, and she also loses some of the benefit of the interest-free loan implied by loss harvesting.

The problem is complex because it involves not only this year, but several years in the future. Our investor, though, must make a decision only with respect to this year, and she will be able to revisit the harvesting decision again next year. Really, all we need to know is which decision this year (to harvest or not) enhances value. We can begin to break down her choice in the following way:

- If she harvests losses this year, she locks in the benefit of a ten-year risk-free loan, but must pay \$20,000 in costs. The ten-year risk free loan is worth \$25,919.¹²⁶ Net of costs, she locks in \$5,919 in value. She can also harvest losses next year if the asset falls below its current value of \$1 million (and she pays transaction costs). Call this right to harvest next year

125. \$3,383,583 is the precise number. A loss of this amount produces a deduction worth \$676,717. A one-year interest-free loan of this amount is $\$676,717 \times (1 - \text{Exp}[-0.03]) = \$20,000$.

126. See *supra* note 76.

- option #1. In short, the investor gets \$5,919 plus option #1 by harvesting this year.
- If she waits, she can harvest losses next year so long as the asset remains below its historical cost of \$1.5 million (and she pays transaction costs). Call this right to harvest next year option #2.

This comparison shows us that the difference between option #2 and option #1 drives the decision. If she harvests losses this year, she locks in \$5,919 and has the less valuable option #1. If she waits, she locks in no value but keeps the more valuable option #2. We know that option #2 is more valuable than option #1; the question is whether the difference exceeds \$5,919. If so, she is better off not harvesting and holding option #2.

To solve this with precision is difficult because the goal of our inquiry is to value these options. If we could value option #1 and option #2 directly, we would have already done so. That being said, all we need to know right now is the *difference* in value between the two, and we can arrive at plausible values for the differences using established option theory.

To estimate the difference, we could assume that option #1 and option #2 are exercisable only next year. This assumption understates the value of both option #1 and option #2—the investor might continue harvesting losses beyond next year as well—but the understatement is consistent for both options.

How do we value the option to harvest next year? At that time, the investor will have a remaining holding period of nine years, and every \$100 of taxable loss will be worth about \$4.73.¹²⁷ In order to offset transaction costs of \$20,000, she would need losses of at least \$422,833. Only after achieving such (quite high) losses would the investor actually consider harvesting losses.

- *Current Year Harvesting:* We assume that the investor harvests losses this year and locks in \$5,919 of value. Future loss harvesting is determined by reference to the current price of \$1 million. In order to offset trading costs, there would need to be losses of \$422,833 (i.e., a price of \$577,167 or lower). After hitting this threshold, the investor receives a \$4.73 benefit for every \$100 of additional loss. In effect, the investor holds a put option over 4.73 percent of the asset. Assuming a volatility of 30 percent, the Black-Scholes value of this implicit put option is about

127. $0.20 * 100 * (1 - E^{(-0.03 * 9)}) = \4.73 .

\$107.¹²⁸ The value is so low because the investor needs very large losses to offset transaction costs. Overall, then, the investor has value of $\$5,919 + \$107 = \$6,026$.

- *No Current Year Harvesting.* If the investor does not harvest losses currently, she locks in no fall. Next year she can harvest losses worth \$4.73 for every \$100 that the asset price is below \$1.5 million. Again, losses would need to be at least \$422,833 to offset transaction costs. In this case, however, taxable losses are determined by reference to the higher historical cost of \$1.5 million. Therefore, any price below \$1,077,167 produces harvestable losses. Likewise, the investor effectively holds a put option over 4.73 percent of the asset, but with a much higher strike price; the Black-Scholes value of the option is \$6,902.¹²⁹ Based on this analysis, the investor should not harvest losses this year. Her value from harvesting is \$6,026, and her value from not harvesting is \$6,902.

We can see, then, that immediately harvesting losses is not always optimal when the investor faces transaction costs. Two things happen when an investor harvests losses. First, she reaps a fixed, present benefit from the tax loss. Second, she makes future loss harvesting less valuable, as future losses occur only if the asset falls in value even more. The investor must decide whether the fixed benefits exceed the loss in value from future harvesting. By focusing only on harvesting next year, we captured (in a rough sense) the tradeoff that loss harvesting presents when the investor faces transaction costs. What the method does not reach, however, is the ability to harvest losses two or more years into the future. Both options described above understate the value for future loss harvesting as they consider loss harvesting only in the subsequent year.

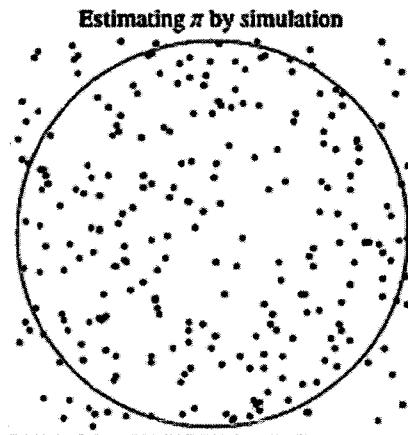
128. I assumed the asset has no yield (like dividends) and has a moderate volatility of 30 percent. As the implicit put option covers 4.73 percent of the asset, the current price is \$47,300. We saw above that the asset itself must fall to \$577,167 before the investor could recover transaction costs; 4.73 percent of that amount is \$27,300, which is the strike price for the option. The \$107.02 value is the Black-Scholes value of a put option where the current price is \$47,300, the strike price is \$27,300, the interest rate is 3 percent, the time period is 1 year, and the volatility is 30 percent.

129. The only difference from the prior option is the higher strike price. The investor will harvest losses at any price below \$1,077,167. As she holds an option over 4.73 percent of the asset, the implicit strike price is \$50,950.

4. A Monte-Carlo Simulation

Recall that, in a world without frictions, the loss harvesting decision is to harvest losses as they appear. The decision is more complicated under frictions. By harvesting losses today, the investor can lock in a certain amount of tax benefit, but she also makes future loss harvesting less valuable. The investor must determine whether the value that could be locked in exceeds the decline in value of future loss harvesting. Determining this decline in value is the hard part, but the prior Subsection estimated the decline using plain-vanilla option pricing models.

We can use this rule to value loss harvesting under frictions. The method for doing so in this Article is a “Monte-Carlo simulation.” Monte-Carlo works by simulating random numbers¹³⁰ with a computer. Consider a simple case of estimating the mathematical constant pi (i.e., 3.14 and so forth). We ask the computer to create a square and a circle inside of a square:



The circle covers a portion of the square, namely π divided by four.¹³¹ Knowing this, we ask the computer to randomly select points inside the square, as if it were throwing darts at the square. Looking at the portion of computer-generated random points inside the circle versus outside gives us an estimate of π . The computer is very fast and efficient with this process. In less than 1.5

130. The computer is said to generate “pseudo-random numbers” as computational processes are deterministic rather than random. See HULL, OPTIONS, *supra* note 81.

131. Assume the square has area of 1. Thus, each side has length 1. The radius of the circle is $1/2$, and the area of the square is $\pi * r^2$ or $\pi/4$.

seconds, it can throw a million “darts” at the square, tally how many landed inside the circle, and use this information to estimate pi.¹³²

More significantly, Monte-Carlo simulations can value financial positions that do not have standard pricing models. We do not need Monte-Carlo to measure pi or to give us the value of standard options. We may need Monte-Carlo, though, to value complex claims like loss harvesting. A particularly useful feature of Monte-Carlo is that it accommodates “path dependent” derivatives. The values of most standard derivatives depend on the ending price of the asset. If I have an option to buy stock two years from today, the only relevant value of the stock is its value on the exercise date. Path dependent derivatives, in contrast, depend on intervening values.

Suppose that the investor buys stock for \$1 million. Ten years later, it is worth \$1.5 million. If the stock had an intervening drop down to \$500,000, the investor could have harvested losses. If the stock had gradually grown at roughly 4 percent per year, there would have never been any opportunity for loss harvesting.

Monte-Carlo accommodates this complexity in the following way:

- Identify the relevant parameters (transaction costs, the tax rate, the discount rate, the volatility of the asset, and the holding period of the investor).
- Create a random path for the asset to follow. In our case, we need annual values as the investor is assumed to make her harvesting decision only once per year.¹³³
- At each point in the path, check to see if the asset has reached a new low value since the investor bought it. If it has, then check to see if the investor should harvest, using the methodology from the prior Subsection.¹³⁴
- Discount to present value the tax benefits from loss harvesting.

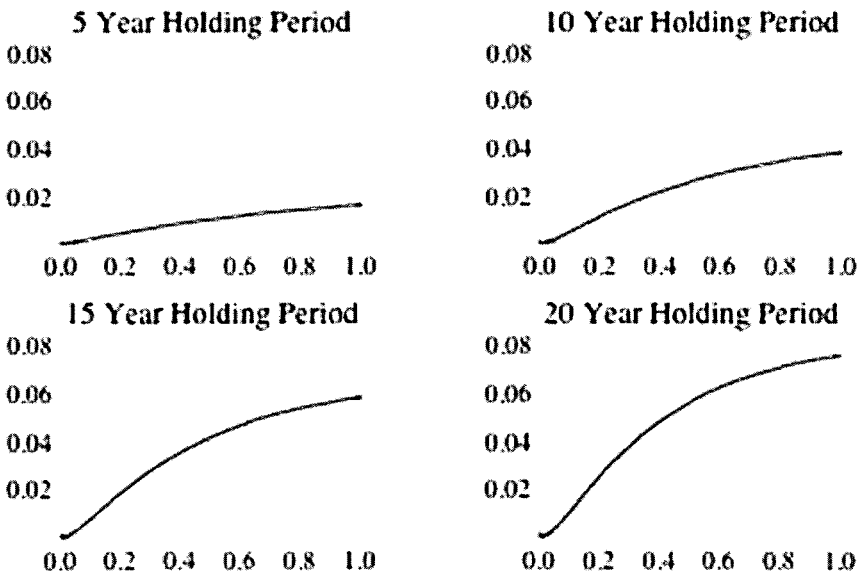
132. Here is the command in Mathematica: `approxPi[n_]:=4. Count[Map[Norm,RandomReal[{-1,1},{n,2}]],_?(#<=1&)]/n; Timing[approxPi[10^6]]`. Cf. generally Wolfram, *How to Perform a Monte Carlo Simulation*, <http://reference.wolfram.com/mathematica/howto/PerformAMonteCarloSimulation.html> (giving Monte-Carlo command).

133. See *supra* Part V.A.1.

134. See *supra* Part V.A.3.

- Repeat this process numerous times and take the average present value of the tax benefits.¹³⁵

I ran Monte-Carlo simulations for loss harvesting under the same scenarios used for the maximum value in Part V.A.3. The results showed that frictions reduced the value of loss harvesting by about one half. For example, with a five-year holding period and volatility of 40 percent, the hypothetical value of loss harvesting given above was about 0.825 percent of the initial value of the asset. By introducing frictions into the analysis, the value of loss harvesting was approximately 0.367 percent of the initial value of the asset. The charts below compare the results of the Monte-Carlo simulation with the results of the hypothetical values.



135. It is well established in the financial literature that option values are set without regard to risk premiums. [A] very important principle in the pricing of derivatives [is] known as *risk-neutral valuation*. This states that, when valuing a derivative, we can make the assumption that investors are *risk-neutral*. This assumption means investors do not increase the expected return they require from an investment to compensate for increased risk. A world where investors are risk-neutral is referred to as a *risk-neutral world*. The world we live in is, of course, not a risk-neutral world. The higher the risks investors take, the higher the expected returns they require. However, it turns out that assuming a risk-neutral world gives us the right option price for the world we live in, as well as for a risk-neutral world. Almost miraculously, it finesses the problem that we know hardly anything about the risk aversion of the buyers and sellers of options. HULL, *OPTIONS*, *supra* note 81, at 257.

VI. CONCLUSION

My goal in this Article was to start a debate about loss limitations rather than end one. Too often, commentators treat loss limitations as being the obvious solution to a serious problem of “cherry picking” losses. However, commentators should reflect on why cherry picking is a problem and suggest ways of measuring its severity. This Article proposes that we define cherry picking as simply tax-motivated selling, a concept well known in the financial literature as “loss harvesting.” Ideally, investors would sell based on nontax considerations. Loss harvesting is arguably a problem because investors’ deductions can be premature when compared with this baseline. Although the government might be able to restore lost revenue with higher tax rates, a deeper problem is the economic distortion caused by loss harvesting. Investors will find it much more rewarding to harvest losses on risky portfolios composed of marketable assets. Thus, unlimited loss deductions give investors an incentive to avoid less risky and less marketable assets. Minimizing distortions like this should be one of the primary goals of tax policy (along with ensuring equity or fairness).

Moreover, defining the problem as premature loss deductions opens the problem to modeling. In this Article, I used option theory to model the cost of premature deductions from loss harvesting. Option theory can also be used to highlight the costs of limiting losses (the current policy response to loss harvesting). The results of these models show that, when it comes to forcing investors to match losses against gains, the costs may well exceed the benefits.

This comparison assumed hyper-efficient, relentless harvesting by investors. Our skepticism about the efficacy of loss limits should deepen after we consider the effects of transaction costs and “frictions” on loss harvesting. The models in use assume investors can monitor prices in continuous time. Even sophisticated investors would have difficulty with even weekly monitoring of prices. Moreover, loss harvesting is costly as it involves transaction costs and disruptions to portfolios from the wash-sale rules.

The main argument that clearly favors the loss limits of section 1211 is the basis step-up rule. The analysis in this Article assumed that all gains would eventually be taxed. Such is clearly not the result for individuals, who can retain gain property until death and obtain a forgiveness of tax on gain. Combining net loss deductions with large-scale gain forgiveness could result in a negative tax on capital in which the government pays investors for holding capital assets.

Thus, any relaxation of the loss limitation rules should be limited. Two possibilities, worthy of future research, come to mind. First, corporations do not enjoy the basis step-up regime. The findings of this Article could support elimination of the loss limitations for corporations, which also do not receive a preferred rate on their long-term capital gains. Second, with respect to individuals, loss limitations should likely remain in place for stocks and

securities, at least those that are publicly traded. Similarly, the wash-sale rules (which are limited to stocks and securities) should remain in place. With respect to other capital assets, though, we should consider whether net loss deductions are appropriate. For example, nonmarketable property (like land) held for a substantial period (perhaps five years) seems unlikely to generate much opportunity for loss harvesting.