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A Realization-Based Approach to the Taxation of Financial Instruments

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I. INTRODUCTION

In recent years, a consensus has emerged among practitioners, policymakers, and tax scholars that financial contract innovation poses significant challenges to the federal tax system.¹ These challenges are widely thought to stem from our system of realization-based taxation.² Under the realization system, tax on risk-based gains and losses generally is deferred until the taxpayer disposes of the asset generating the gain or loss,³ and any gain realized often is taxed at favorable rates.⁴ By contrast, fixed returns typically are taxed when they economically accrue and at ordinary rates.⁵

Commentators have identified two general ways in which financial contract innovation threatens a realization-based income tax.⁶ First, by facilitating the creation of assets taxed under the realization rule that resemble assets taxed on an accrual basis, and vice-versa, it exacerbates what is referred to as “discontinuity” in the tax law.⁷


³ IRC § 1001. The definition of the term “disposition” is itself controversial and is taken up in Sections III & IV.

⁴ IRC § 1(h). Exceptions to these basic principles are numerous, including, among others, IRC § 1221(a)(1) (excluding inventory from the definition of a capital asset), IRC § 475 (securities dealers’ gain or losses from securities), IRC § 1256 (certain futures, foreign currency, and options). A number of these exceptions are discussed in more detail in Sections III and IV.

⁵ See, e.g., IRC § 1272 (taxing accrued but unpaid interest resulting from original issue discount).


continuity arises when economically similar returns are subject to dissimilar tax treatments. Second, financial contract innovation promotes what is referred to as "inconsistency" in the tax law. Inconsistency arises when the tax treatment of a single economic return depends solely on the form in which it is received. Here the problem results from the dramatically enhanced capability that financial contract innovation affords taxpayers to replicate economic returns subject to tax on an accrual basis with instruments taxed (in whole or part) on a realization basis, and vice-versa.

Both inconsistency and discontinuity undermine the tax system in a variety of ways. They provide electivity of tax treatment leading to increased tax avoidance, they create uncertainty in the administration of the tax law, and they generate substantial compliance and tax planning costs that are economically inefficient. Further, they exacerbate both actual and perceived inequities in the tax system, because instruments that exploit inconsistencies or discontinuities often are available only to well-advised, sophisticated taxpayers for whom transaction costs are not prohibitive. This problem is particularly acute in the financial instruments area, where tax-motivated transactions tend to be complex and generally must involve large investments in order to be economical. The burden of covering the revenue shortfall that these transactions create therefore falls disproportionately on less sophisticated taxpayers, who also may object to the inequity of providing tax benefits to those better able to pay tax.

These and related problems have led many commentators to call for fundamental tax reform. Some have pushed for an accretion-based tax system or approximation to it under which economic gains and losses are reckoned annually without regard to disposition, while others have suggested that the idea of taxing income from capital is

8 See, e.g., Strnad, note 7, at 571-72.
9 See, e.g., Shaviro, Risk-Based Rules, note 1, at 651-56 (discussing costs of risk-based rules with special reference to the impact of derivatives); see also David A. Weisbach, Line Drawing, Doctrine, and Efficiency in the Tax Law, 84 Cornell L. Rev. 1627 (1999) [hereinafter Line Drawing] (identifying costs resulting from inefficient tax rules).
12 Many of the criticisms discussed here form part of a more generalized and longstanding critique of the realization rule. See, e.g., Fellows, note 10, at 723-28, Shaviro, Risk-Based Rules, note 1, at 674-76.
flawed in conception and should be abandoned altogether. Nearly all assume that a realization-based tax system cannot effectively deal with the opportunities to exploit inconsistency and discontinuity that financial contract innovation affords, through the ever-more refined allocation of economic risks and benefits that it makes possible.

Perhaps unfortunately, any comprehensive overhaul of the tax system is unlikely to materialize in the foreseeable future, and indeed for reasons that are well understood. There are at bottom two potential alternatives for reform that would eliminate the problems created by the realization rule. The first would be to scrap the income tax in favor of a comprehensive consumption tax (possibly supplemented by a wealth transfer or other tax). Such a move would largely eliminate realization problems, because tax no longer would arise prior to a clear realization event associated with the conversion of wealth into consumption. Despite repeated efforts to popularize them, however, such proposals never have garnered widespread support, and there does not appear to be any reason to believe that attitudes have changed significantly in recent years.

The second course would be to move to what is commonly referred to as a "pure" or "Haig-Simons" income tax, under which gains and losses are comprehensively identified and taxed periodically, without regard to realization. Such a mark-to-market regime already applies

(proposing bifurcation and expected value taxation for financial products that requires a less ambitious reform of the tax system than do the preceding proposals).

14 See Shaviro, Risk-Based Rules, note 1, at 645 ("[T]he problems with relying on risk-based rules raise serious questions about the entire enterprise of taxing income from capital.").

Problems analogous to those that the realization rule creates for an income tax can arise under a consumption tax, but these problems generally are recognized to be comparatively minor. For example, taxing consumption at the time of expenditure, or realization, will result in overtaxation of consumer durables because actual consumption takes place over more than one period. See Mitchell L. Engler & Michael S. Knoll, Fundamental Tax Reform: Simplifying the Transition to a (Progressive) Consumption Tax, 56 SMU L. Rev. 53, 73-78 (2003). One way to address this problem (if it is thought to be significant) is to pro-rate tax due based on a deemed consumption period. Id.


17 See Steven A. Bank, The Progressive Consumption Tax Revisited, 101 Mich. L. Rev. 2238 (2003) (reviewing Edward J. McCaffery, Fair Not Flat: How to Make the Tax System Better and Simpler (2002)). In an effort to explain why consumption tax proposals are unlikely to meet with success, Bank notes the problems that notoriously afflict proposals for comprehensive consumption taxation. Nongraduated consumption taxes tend toward politically unacceptable levels of regressivity, while graduated consumption taxes tend to be viewed as overly complex.

to a limited set of assets and persons, but expansion of this approach to all assets also seems to suffer from insuperable difficulties. A comprehensive non-realization-based income tax would require periodic valuation of all capital assets, not just those that are publicly traded, and it would require many illiquid taxpayers to sell assets in order to pay tax. The costs and unpopularity of such measures likewise have been recognized to make a Haig-Simons-type system a political nonstarter.

In view of these realities, the question becomes whether any satisfactory solutions to the problems of financial contract innovation are available under the limitations imposed by the realization rule. Although, as discussed above, many commentators have despaired of such a solution, others have proposed a variety of more moderate reforms designed to enable the current system to deal more effectively with financial instruments, recognizing that a fully rationalized system is not a realizable goal under current circumstances. This Article is offered in that spirit. It represents an effort to identify a systematic failing of the current system that could be corrected without sacrificing the administrative and political advantages of a retained, though modified, realization rule. In this respect it represents an effort at partial reform, but a relatively global effort at that.

There are two aspects to the proposal. The first is to limit application of the realization rule to a narrower class of returns than the class to which it now applies. For most of its history the realization rule has embodied an effort to apply wait-and-see taxation to the relatively narrow class of risk-based returns that result from market-based fluctuations in the prices of capital assets, not to all risk-based returns. I refer to the risk associated with the receipt of returns from such market-based fluctuations as "investment risk." A realization rule presumptively confined to returns from the assumption of investment risk

19 The principal examples are certain forward, futures, and other contracts under § 1256, and securities held by dealers in securities under § 475.

20 See generally Zelinsky, note 2, at 879-94 (discussing both valuation and liquidity problems that the realization rule avoids). It is possible that a kind of deferred realization scheme could be adopted as a way to avoid certain problems of valuation. See e.g., Fellows, note 10. Such a regime would permit tax on annual changes in value to be deferred until disposition with an interest charge (or rebate) assessed to reflect forgone tax revenue (or expenditures). This approach could resolve some liquidity and valuation issues but would not be fully satisfactory. For example, tax due would accrue with the passage of time, creating an incentive to defer disposition where assets had appreciated and then declined in value. The political difficulties of charging interest on "unearned" gains and losses would remain.

could resolve many of the problems that financial instruments create, without entailing wholesale reform of the income tax.\(^{22}\)

The second, and more far-reaching, aspect of the reform would be to apply such a narrowed realization rule to all investment-risk-based gains and losses, whether or not they are received separately or as one of several returns from a given instrument. This proposal would tax on a current basis interest-like returns arising both from temporal divisions of property and from what I refer to as "risk-based" divisions of property, or options, by means of a Black-Scholes-based theory of option taxation. Current rules reach time-based returns in the case of some property divisions but not others, and they generally do not tax risk-based property divisions.

Two basic circumstances support the adoption of such a two-pronged approach. First, most financial instruments that generate risky returns are not capital assets of the sort historically accorded realization treatment; they are assets that represent various kinds of zero-sum wagers.\(^{23}\) Unlike changes in the value of traditional capital assets such as stock or debt, the returns from such instruments are unambiguously associated with equal and offsetting returns held by identifiable transactional counterparties rather than with generalized market effects.\(^{24}\) These features of financial instruments make it possible to draw a hard, if somewhat formal, line between them and other kinds of assets that generate risk-based returns.

Second, because tax-advantaged financial products tend to be suitable only for high income, well-advised taxpayers, most of those who would be unduly burdened by a more comprehensively applied Haig-Simons-type regime would remain largely unaffected if these measures were confined to financial instruments. The proposal therefore would avoid much of the hardship associated with a fully-implemented Haig-Simons income tax.

Notwithstanding these virtues, it is important to acknowledge at the outset that this approach, like any other that operates within the framework of the realization rule, offers only a partial solution to the problems of financial contract innovation, and it comes with its own costs. As an example, arbitrage opportunities that involve offsetting financial contracts on one hand and traditional capital assets on the other would remain. The reason is that the line between investment

\(^{22}\) By "presumptively confined" I mean that returns from investment risk typically would be subject to the realization rule and that other returns typically would not. As explained below, the government nonetheless could reverse either of these outcomes where circumstances warranted.


\(^{24}\) See id.
risk and other kinds of risk is to some extent a formal one; ownership of "hard" capital assets need not represent a different kind of economic investment from that provided by wagering-type or other transactions that are common financial products. Another result could be over-investment in real, as opposed to financial, capital. Further problems could include increased compliance costs because of the more complicated accounting methods that would apply to some transactions, and the arbitrariness in taxation of certain nominal debt and equity positions that arises from the fact that the line between debt and equity is somewhat formal. Although I believe that on balance the benefits of the approach would outweigh its costs, I acknowledge that the costs are real.

The next three Sections of this Article work out the reforms I propose. Section II sets out the basic concepts of realization and accrual and describes the concept of investment risk. Section III describes the phenomenon of carved-out interests in property, or "carve-outs," and demonstrates how the tax system should deal with them in light of the distinction between returns from investment risk and other kinds of returns. Carve-outs are common features of many financial instruments. Section IV then applies this analysis to two common financial instruments, showing that the investment risk criterion and the carve-out analysis permit taxation of these instruments in a way that is reasonably consistent with the policies that support realization-based taxation and that provides a high degree of consistency and continuity within the tax system.

Section V draws several conclusions from the approach that I develop. Having explicated how a bifurcation regime that is based on the investment-risk theory of realization might overcome problems of financial contract innovation, I offer a number of observations about discontinuity and inconsistency that have more general and more immediate practical import. In particular, I show that the focus on investment risk helps to clarify why previous efforts at bifurcation in the financial instruments area have been only modestly successful, and I outline some of the properties that any successful bifurcation regime should have. A brief conclusion follows.

II. THE INVESTMENT RISK STANDARD

A. Realization and Accrual Generally

As a general matter, ordinary income is taken into account in the period during which the taxpayer's right to it becomes fixed and, in

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the case of cash method taxpayers, in the period when the funds are made available to the taxpayer without restriction. This rule applies, with certain exceptions, to such items as fees for services, interest income, cash dividends, and rents (to name several of the most important examples), and it reflects the basic principle that gross income includes all accessions to wealth, whether or not the result of productive activity and whether or not reduced to cash payment.

The most important exception to this principle is the realization rule, which defers recognition of gain or loss resulting from unpredictable changes in the value of certain assets until the taxpayer disposes of the asset, even if the taxpayer can ascertain the amount of gain or loss with certainty during his holding period and he has an unrestricted right to cash out the gain (or to make good a loss). When the asset has been held for more than a year, recognized gains also may be subject to reduced rates. The typical example of gain or loss subject to the realization rule is the increase or decline (other than the decline due to statutorily permitted depreciation) in the value of a capital asset. A taxpayer holding such an asset generally does not recognize gain or loss on the change in value of the asset unless and until disposition occurs.

Although both the general rule of current inclusion and the exception for unrealized, unpredictable gains and losses from certain assets are subject to numerous qualifications, these principles describe the

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26 IRC § 451(a). Accrual basis taxpayers generally take income (and expenses) into account in the taxable year in which all events have occurred that fix the taxpayer's right to and amount of payment (or obligation to pay expense and economic performance has occurred), without regard to when payment actually or constructively is received (or made). Reg. § 1.451-1(a); see also IRC § 461(h) (setting forth economic performance requirement for accrual of expenses).

27 Exceptions include interest earned in respect of certain CDIs and certain payments on NPCs. Reg. § 1.446-3 (accrual of certain payments under NPCs), § 1.1275-4 (accrual of interest on CDIs). CDIs are discussed in detail in Section IV.B.

28 See Commissioner v. Glenshaw Glass, 348 U.S. 426 (1955) (holding that gross income includes punitive damages received and stating more generally that it includes all accessions to wealth).

29 The Code contains no express realization requirement. The closest statement appears in IRC § 1001, which provides that gain is equal to amount realized less adjusted basis. Instead the rule generally operates as a default subject to express override in certain instances. See, e.g. IRC § 1256 (providing for mark-to-market taxation of certain financial instruments); § 1259 (providing for realization on "constructive disposition" of certain "appreciated financial instruments").

30 See IRC §§ 1(h), 1223.

31 IRC § 167.

32 If the property is held by an individual, gain or loss that accrues during the taxpayer's life may never be taxed if the taxpayer holds the property until death. IRC § 1014.

33 Exceptions to the general rule include: Rev. Rul. 78-182, 1978-1 C.B. 265 (excluding call option premiums until exercise or lapse of the option or the holder enters into a closing transaction); IRC § 1272 (including OID prior to actual receipt of the interest payment).
basic approach taken by the Code to most forms of income. What is unclear is whether any rationale supports the general exception providing for nontaxation of unrealized gains and losses within the framework of an income tax and, irrespective of any possible rationale, whether the general exception can survive the challenge posed by new financial instruments. The emerging view among tax scholars and practitioners answers both of these questions in the negative.34

In light of the persistence of realization as a criterion to taxing certain sorts of returns, this Article sidesteps the question of rationale and focuses instead on the consequences of limiting realization treatment to returns that result from the assumption of "investment risk." The purpose of this limitation is not to demarcate a set of returns for which realization treatment is somehow ultimately correct, but instead to illustrate the substantial advantages that result from drawing the line there, and from drawing it there consistently, given that the line must be drawn somewhere.35 This Section unpacks the concept of investment risk, a term I use to refer to investments generating returns that historically have been subject to realization-based taxation, and identifies some salient differences between returns that result from a taxpayer's assumption of investment risk and other kinds of returns, both risk-based and fixed.

B. The Concept of Investment Risk

As a descriptive matter, there are three essential features of price fluctuations associated with an assumption of investment risk. These features isolate the aspects of property ownership relevant to the risk-based returns that historically have been subject to realization treatment, as contrasted with predictable value changes and other kinds of risk-based fluctuations, both of which historically have not.

First, the fluctuations must result from secondary market effects, rather than from a change either to the property that generates the return, or in the relationship of the holder to the property itself. This criterion excludes from tax on a realization basis the actual receipt of value, even though the receipt is not associated with a disposition, or

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34 See, e.g., Clarissa Potter, Mark-to-Market Taxation as the Way to Save the Income Tax—A Former Administrator's View, 33 Val. U.L. Rev. 879, 882 (1999) ("Realization cannot be generalized into a coherent principle of income."); see generally Fellows, note 10; Shaviro, Risk-Based Rules, note 1; Warren, note 1.

35 This Article does not address either the historical reasons for the limitation of the rule to investment risk-based returns or the conceptual coherence of drawing the line in this particular place (or any place, for that matter).
separation, of property; it also excludes certain non-market-based value shifts not associated with formal receipt. An example of the former would be an increase in the value of property resulting from a change to the property itself, such as improvements to it.\textsuperscript{36} An example of the latter would be a value shift triggered by dispositions of the underlying property by another that do not involve the taxpayer’s formal receipt, such as a constructive stock distribution under § 305(C).\textsuperscript{37} In both cases Congress may tax the economic return as income.

Second, the change in value must result from market fluctuations that are unpredictable ex ante. This criterion ensures that amounts expected to accrue or dissipate at the time the taxpayer acquires the asset can be taken into account as the accrual or dissipation occurs (or is expected to occur). On the gain side the most salient example is interest income resulting from OID, and on the loss side it is depreciation. These amounts are predictable and, even though there may be no disposition of or even change to the underlying property, are taxed on an economic accrual basis.\textsuperscript{38}

Finally, and most importantly for present purposes, the change in value must not be associated with an equal and offsetting change in the value of an asset or obligation held by one or more other parties. This criterion distinguishes the assumption of investment risk from the risk that is most common to financial instruments, in which the instrument merely represents a set of offsetting rights and obligations of the parties to it. In such a case, the net income of the parties is necessarily zero, and the instrument itself merely specifies how the parties will divide a fixed pot of predetermined size (apart from, in many cases, a service fee paid to one of the parties).\textsuperscript{39} Fluctuations in its value represent a shift in the parties’ rights and obligations, not a change in relative productivity of the asset apart from the income, or flow, that the asset generates.

The paradigm case of an asset meeting the investment risk criteria is a simple capital asset, such as a share of corporate stock.\textsuperscript{40} Fluctua-

\textsuperscript{36} An example is Helvering v. Bruun, 309 U.S. 461 (1940), in which the Supreme Court held that the lessor of real property was subject to tax at the termination of the lease on the fair market value of improvements installed by the lessee. The government acknowledged, and the Court assumed, that the improvements were not severable from the property. Id. at 468-69. Congress provided for deferral of tax in the Bruun situation, but only where the improvement is not intended as rent. IRC § 109.

\textsuperscript{37} Section 305(c) provides that in certain circumstances, no actual stock dividend to shareholders whose interest is increased is required in order to trigger taxable gain to such shareholders. See Reg. § 1.305-7(a).

\textsuperscript{38} See IRC § 163(e) (deduction for OID deemed paid), §§ 1272-1275 (current inclusion of OID deemed accrued); see also § 167 (deduction for depreciation).

\textsuperscript{39} See, e.g., Reg. § 1.446-3.

tions in the value of stock typically reflect changes in the market productivity of the capital that ownership of the stock represents relative to other capital assets.\textsuperscript{41} For example, if the risk-free rate of return to capital at the time the stock is purchased is 5\%, then assuming adequate market information, the stock should be priced to yield an "all-in" expected return of 5\%, plus an amount that reflects the added risk the taxpayer assumes by investing in the stock rather than in T-bills, which are viewed as risk-free.\textsuperscript{42} This all-in return would include, on the positive side, income received by the company both from its own activities and from its investments, and, on the negative side, current expenses, depreciation, and loss from the company's investment activities.\textsuperscript{43} In an efficient market the risk premium would reflect all publicly available information regarding the risk profile of the issuer.\textsuperscript{44} If the stock turns out to produce returns in excess of the expected amount, or if the prevailing rate of return to capital falls below 5\%, one would expect the price of the stock to increase so that its expected return equaled the prevailing rate, as adjusted for risk. Conversely, if either the stock's returns fall below the expected rate or the prevailing return to capital increases, one would expect the stock price to fall. This gain or loss typically would be realized on disposition of the asset.

A similar analysis applies to fixed-rate debt, which, like stock, is priced to reflect both the prevailing rate of return to capital and the risk profile of the issuer.\textsuperscript{45} Although an investment in debt does not participate in unlimited upside potential or downside risk of the issuer, this risk profile likewise is impounded into the price of the debt instrument:\textsuperscript{46} The greater the issuer's credit risk, the higher the interest rate the issuer must pay on its debt. Moreover, like stock, the value of an issuer's outstanding debt can be expected to fluctuate in unpredictable ways depending on the relative productivity of the issuer's capital. Improvements in issuer creditworthiness or a general

\textsuperscript{41} The following discussion generally follows Marvin Chirelstein's discussion of the distinction between capital gains and ordinary income, though Chirelstein aims to explain differential rates rather than the realization rule. Marvin A. Chirelstein, Fruit-Tree and the Ordinary Income Base, 1 U. Bridgeport L. Rev. 1, 2-5 (1980).


\textsuperscript{43} See Chirelstein, note 41, at 3.


\textsuperscript{45} See id.

\textsuperscript{46} See id. Scarborough characterizes the risk premium on both stock and risky debt as a "bet" element of the instrument. Id. at 683-84. As explained below, I prefer to reserve the term "bet" or "wager" for transactions in which one party's gain or loss offsets precisely the loss or gain of one or more counterparties.
decline in the productivity of capital will reduce the issuer's cost of capital, thereby increasing the value of its debt, while deterioration in the issuer's creditworthiness or an increase in the general productivity of capital will have the opposite effect.

Earlier I indicated that one type of risk that does not fall within the definition of investment risk is wagering risk. This type of risk is prevalent in financial instruments.47 A typical example would be a notional principal contract (NPC). In general an NPC is a bilateral contract, or swap, pursuant to which one party agrees to make one or more fixed payments in exchange for one or more floating payments from the counterparty.48 On the date the parties enter into the swap arrangement the two rights typically will be of equal value, but over time the values are likely to shift. In situations such as these, the instrument is more akin to a wagering transaction than to the ownership of a productive capital asset. Each party in effect either bets that the balance of rights and obligations will shift in her favor after the transaction is entered into, or makes certain assumptions about this balance.49

Consider the following example:

Example 1:50 On Day 1, A and B enter into a contract pursuant to which A promises to pay B $100 times the annual increase in value, if any, of equity Index 1 for five years, and B promises to pay A annually $100 times the increase in value, if any, of equity Index 2 over the same period. On each payment date the parties net out their positions through a single cash payment.

Under this NPC, each party assumes the risk that her position will decline in value relative to the position of the counterparty. The parties do not purchase an interest in productive tangible or intangible

47 See Kimberly D. Krawiec, More Than Just "New Financial Bingo": A Risk-Based Approach to Understanding Derivatives, 23 J. Corp. L. 1, 5 (1997) (“[T]he derivatives market is a zero-sum game. . . .”).
48 See Reg. § 1.446-3; Prop. Reg. § 1.446-3 (both setting out rules for taxation of NPCs). As an example, at a time when the reference floating interest rate is 10%, one party may agree to pay the other party $100,000 annually for a period of years in exchange for the right to receive annually the reference floating rate times a $1 million principal amount over the same term.
49 The purpose of entry into an NPC is not necessarily to engage in speculation. For example, parties may enter into NPCs in order to hedge liabilities, as when the floating rate to be received tracks a party's expected future liabilities. In that case they may anticipate that the balance of rights will favor the counterparty, but they are willing to assume that risk in exchange for the insurance element the NPC provides.
50 In all examples in this Article, the parties are assumed to be unrelated calendar-year taxpayers.
property, and any increase or decrease in the net value of either party's rights under the contract is offset exactly by a decline or an increase in the net value of those of the counterparty. The total return from this kind of arrangement, which in effect is a simple bet, is zero.\(^{51}\) Indeed, the indexes used by \(A\) and \(B\) serve merely as markers to determine obligations that are the risks of the parties to the contract itself.\(^{52}\) Because neither \(A\) nor \(B\) has assumed an investment risk, the case, if any, for extending realization treatment to their returns hinges on such factors as administrability and limitation of arbitrage opportunities.\(^{53}\)

It is useful to contrast Example 1 with a similar transaction that involves actual capital investment:

*Example 2:* On Day 1, \(C\) purchases $500 worth of Index 1 shares, and \(D\) purchases $500 of Index 2 shares. Also on Day 1, \(C\) and \(D\) enter into a contract pursuant to which \(C\) promises to deliver to \(D\) annually for five years one-fifth of the shares of Index 1 that \(C\) purchased on Day 1, and \(D\) promises to deliver to \(C\) annually for the same period one-fifth of the shares of Index 2 that \(D\) purchased on Day 1. On each payment date \(C\) and \(D\) deliver the shares pursuant to the contract.

\(^{51}\) In fact what I have termed wagering risk comprises a number of risks, including the risks that the loser will be unable to pay the winner (credit risk), that a contract is not enforceable (legal risk), that opportunities to dispose of or hedge a position will not be readily available (liquidity risk), and that human or electronic systems or controls will be inadequate to manage ownership of financial instruments (operational risk). See Krawiec, note 47, at 17-51 (identifying and describing these risks).

\(^{52}\) See Provost v. U.S., 269 U.S. 443, 455 (1926) (describing in lieu payments by borrower to lender as a personal obligation, wholly contractual, that has been substituted for the incidents of ownership). Proposed regulations under § 1058 carry through the Provost principle; they treat payments in respect of certain securities lending transactions as made pursuant to the lending contract and not on the security itself. Prop. Reg. § 1.1058-1(d); see Edward D. Kleinbard, Risky and Riskless Positions in Securities, 71 Taxes 783, 784 (1993) [hereinafter Risky and Riskless] (noting that parties to derivative transactions generally assume the credit risk of counterparties to the transaction, not the credit risk of the issuer of the underlying asset or security).

\(^{53}\) Edward Kleinbard notes that one distinguishing feature of derivative instruments is that they are not finite. Any number of positions may be taken with respect to, for example, a single share of stock, even though there may be only one owner of the share, because the derivative instrument is really a contractual obligation of a party to the derivative transaction; it is not an obligation of the issuer of the underlying security. Kleinbard, Risky and Riskless, note 52, at 787, 795; see Kevin Dolan & Carolyn DuPuy, Equity Derivatives: Principles and Practice, 15 Va. Tax Rev. 161, 164 (1995) ("The defining feature of derivatives generally is that they are all executory contracts under which one party promises to pay its counterparty all or part of the economic equivalent of what the payee would derive if the payee owned the underlying securities to which the contracts relate."). In terms of the language developed in this Article, certain derivatives do not yield investment risk-based returns.
Unlike the contract in Example 1, the contract in Example 2 does not necessarily reflect a zero-sum arrangement.\footnote{This arrangement should be analyzed as the execution of five forward contracts. See Section IV.A. for a discussion of the treatment of such contracts.} If, for instance, between Day 1 and the first annual payment date, Index 1 appreciates by $5 and Index 2 by $7, each party experiences a gain. Similarly, both indexes could decline in value during the period. In either case the net result of the two positions need not offset because $C$ and $D$ in effect have swapped their investments and it is merely their relative advantages that will precisely offset: $C$ is $2 better off than $D$ under the contract. This possibility of mutual appreciation (and of loss) reflects the fact that the parties have assumed investment risk.

The foregoing considerations suggest that the line between investment risk-based returns and other kinds of risk-based returns may furnish a clear and to some extent nonarbitrary basis for deciding when to apply the realization rule. Whatever the merits of the realization rule itself, the policy decision to draw the line at investment risk demarcates a subset of risk-based returns for realization taxation that largely corresponds to the line between traditional risk-based returns and risk-based returns provided by financial products. As to such non-investment-risk-based returns, there never has been any controversy over Congress' power to impose tax at the time of the economic accession to wealth, whether or not associated with a realization event. Unlike the cases of simple capital assets and debt, no long-standing history of realization-based taxation, and no widely-assumed reliance on such taxation, exists for wagering-type transactions. Rather, the returns from most financial instruments, which typically represent an assumption of wagering risk, are simply another kind of return to risk that can be expected to be taxed on any basis consistent with the holder's accession to wealth.

The purpose of these observations is not to defend the realization rule as an original matter in the context of an income tax. Whether the policies that support its application over other approaches—within the framework of either an income tax or some other tax—is a separate question. Rather, the purpose of this discussion is to uncover the ways in which the realization rule actually has been considered and applied under the income tax, and to highlight differences between returns traditionally subject to realization-based taxation and other types of returns. This focus on the historical scope of the realization rule is largely pragmatic. By presumptively confining realization treatment to market-based fluctuations in the value of standard capital assets, the majority of assets historically subject to the rule would remain so subject, while the majority of financial products asso-
associated with increased discontinuity and inconsistency in the tax system would be taken off of realization accounting. In other words, for administrative, pragmatic, and political reasons, the historic line represents a suitable place at which to separate realization accounting from accrual or other similar types of accounting.

III. Carved-Out Interests in Property

The preceding Section described the concept of investment risk and offered a justification for limiting application of the realization rule to income from the assumption of investment risk. This Section focuses on the consequences of such a limitation as applied to assets that combine investment-risk returns and returns from other sources, a common feature of many modern financial instruments. These other types of returns typically consist of an interest or interest-like component and, often, income from wagering-type transactions.

Such "mixed-return" financial instruments are a species of a more general category of assets that represent nonspatial divisions of property, sometimes referred to as carved-out property interests, or carve-outs. The tax treatment of carve-outs has been the subject of limited scholarly attention, most of it seeking to apply realization and accrual concepts in a consistent way to transactions in real or tangible personal property. Not as much attention has been paid to intangible carve-outs in general, or to financial instruments in particular. Further, the literature has not distinguished, for the most part, between two general types of carve-outs that are relevant for present purposes: those involving only temporal divisions, such as an ordinary forward contract, and those also involving divisions of market risk, such as a call option. Rather, the few commentators to have addressed carve-outs have tended to analyze both of these kinds of divisions as tempo-

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55 As explained in Section IV, there may be good reasons to extend the realization rule to other contexts as well. The considerations that support such extensions, however, are administrative and not grounded in the basic principle of according realization treatment to capital gain and loss.


57 See, e.g., Chirelstein, note 41; Cunningham & Schenk, note 56; Kenneth F. Joyce & Louis A. Del Cotto, The AB (ABC) and BA Transactions: An Economic and Tax Analysis of Reserved and Carved Out Income Interests, 31 Tax L. Rev. 121 (1976); Jeffrey L. Kwall, The Income Tax Consequences of Sales of Present Interests and Future Interests: Distinguishing Time From Space, 49 Ohio St. L.J. 1 (1988); Popkin, note 40.

58 Cunningham and Schenk's article does apply the carve-out analysis to certain intangible interests such as options and other financial transactions. Cunningham & Schenk, note 56, at 775-92 (options) & 797-800 (investments). Their analysis, however, is not fully consistent with realization-based taxation, as the title of their article suggests. See text accompanying notes 110-14 for a discussion of the Cunningham and Schenk approach.
The next Subsection reviews and builds on the basic theory developed by these commentators for the taxation of temporal carve-outs. The following Subsection distinguishes carve-outs involving divisions of risk from temporal carve-outs and argues that it is necessary to adopt a different set of rules in order to tax risk-based carve-outs. These rules are then developed and applied to simple option contracts.

A. Temporal Carve-Out Transactions

In a temporal carve-out transaction, one party transfers a time-slice of the rights to underlying property and retains (or perhaps transfers to one or more others) the remaining time-slices. Familiar examples of temporal carve-out transactions include dispositions of remainder interests, lease transactions, and sales with retained reversions. Transactions that involve the disposition of a temporally limited property interest are common features of modern financial transactions; they include forward and futures contracts, many contingent-payment debt instruments (CDIs), and many swap or swap-like transactions. For example, a forward contract is a temporal carve-out transaction because it provides for the disposition of property on a future date in exchange for cash, typically payable on the same date as the property transfer date. The effect of such a contract is the seller's retention of the incidents of ownership, followed by their transfer to the buyer on the payment date. Many swaps and CDIs, in turn, closely resemble a series of such forward contracts.

Prior to the advent of modern financial instruments, the principal areas in which carve-outs figured were real estate leases and transactions involving oil and gas properties. A recurring example involved the owner's conveyance of a remainder interest in oil- or mineral-producing land in exchange for a (typically) contingent payment, with the seller's reservation of rights to current income from the property for some fixed period. The principal tax question such a transaction raised was whether to respect its form, or instead to treat the seller as disposing of the entire interest, with part of the payment made through a purchase money mortgage extended to the purchaser.

59 See, e.g., Cunningham & Schenk, note 56, at 775-92 (discussing call and put options as temporal carve-outs).
60 See Joyce & Del Cotto, note 57, at 131-34 (discussing carve-outs as applied to oil and gas sales).
61 Id. at 121-30 (developing this example in detail).
62 The tax question arises because of the availability of a depletion deduction to the owner of an "economic interest" in oil- or gas-producing property, but not to a party with a lesser interest. See Palmer v. Bender, 287 U.S. 551, 558 (1933) (holding lessees were entitled to depreciation deductions because they, and not lessor, had an economic interest...
Under the latter characterization, the transaction is a simple sale and payments the seller formally receives from buyers of oil or minerals in respect of the present interest are treated as made first to the purchaser of the remainder interest and then as transferred to the seller as repayments of principal and interest on the loan. If, however, the form of the transaction is respected, the sale is a temporal carve-out transaction: The seller in effect retains a present interest in the land and disposes of a remainder. Under early case law, the latter approach prevailed in the mineral context, but Congress has since provided for the former treatment. Because, as argued below, the carve-out rules more accurately reflect the economic substance of the transaction, they generally should apply where taxpayers dispose of such temporally limited interests in property.

1. Basic Economic Analysis of Temporal Carve-Out Transactions

To see why the carve-out analysis should apply to the transaction just described, as well as to a wide array of similar transactions, consider the more basic analysis of the economic value of a parcel of real estate over time, where the fair market value of the property does not fluctuate.

Example 3: On the first day of Year 1, A purchases Blackacre, unimproved real property, at its fair market value of $1,000. Blackacre is expected to and does generate rental income of $100 annually for an indefinite period of time, payable on the last day of the year, and its value is expected to and does remain constant for the foreseeable future.

63 Thomas v. Perkins, 301 U.S. 655 (1937) (holding purchaser of leaseholds not taxable on amounts received by seller from oil production).

64 IRC § 636(b) (retention of income interest in oil-producing property treated as seller-financed borrowing by purchaser); see IRC § 1235 (retention of limited royalty interest in patent sale treated as sale of entirety of underlying property).

65 This statement presupposes that the economic substance of the transaction is a true retention by the seller of the benefits and burdens of the property prior to its transfer. In certain circumstances such a retention does not occur, and the form should not be respected. In particular, where the seller of the future interest looks to the purchaser to make good any deficits in expected oil or gas payments or otherwise does not bear the economic risk with respect to the retained periods, the transaction is akin to a sale of the fee financed with a purchase-money mortgage. See Joyce & Del Cotto, note 57, at 138-39.

66 The following discussion is based on Joyce and Del Cotto's analysis of the temporal component of economic value. Id. at 123-30.
The analysis of A's property interest appears to be straightforward. In any given year A has $100 of realized and taxable income from the property, apparently attributable entirely to the rental income the property generates during that year. A has no capital gain or loss, either accrued or realized, because Blackacre's fair market value has not changed and, in any event, she does not dispose of the property.

As a number of commentators have pointed out, this analysis is not correct as an economic matter. Although A annually has $100 of receipts and $100 of real economic income, economically the annual income is only partly attributable to the $100 of rent actually received. Indeed, very little of A's economic income in any given year results from the $100 of rent. Most of it results from the increase in the value of the rights to rental income from Blackacre in future years, while economic depreciation from disappearance of the present interest offsets the bulk of the $100 rent. To see this point, consider a slightly different transaction:

Example 3A: On the first day of Year 1, B purchases a one-year interest in Whiteacre, real property that is in all relevant respects identical to Blackacre, from a third party for $90.91. Whiteacre generates $100 of rental income during the year, to be received on the last day of Year 1.

With respect to the income received in Year 1, A and B are in identical economic positions. Each has $100 of rent in respect of underlying property that is neither appreciating nor depreciating. Offsetting B's realized gain of $100, however, is an economic loss of $90.91 attributable to the wasting away of B's right to Whiteacre. B therefore realizes net income from Whiteacre of $9.09. The deduction of B's (economically) unrecoverable cost prevents her from being overtaxed. Current tax rules generally reflect this analysis. The purchaser of a term interest, such as B's interest in Whiteacre, may deduct ratably the cost of her interest against the income it produces, thereby producing a measure of her taxable income that more closely reflects her actual economic income.

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68 This is the value on the first day of Year 1 of the right to receive $100 on the last day of Year 1, where the rate of interest is 10% compounded annually.

69 See Bell v. Harrison, 212 F.2d 253, 255 (7th Cir. 1954) (holding that purchased life estates are amortizable over the expected life of the estate, and citing cases for the general proposition that purchased term interests are amortizable ratably).

70 As explained more fully below, a more accurate depreciation rule would apply the sinking fund method.
It is hard to see why the same kind of analysis should not also apply to A with respect to Year 1 in Example 3.\textsuperscript{71} To say that it should not because A's interest represents a fee, and therefore is a nonwasting asset, either is incorrect or begs the question. If one views A's income from Blackacre as resulting solely from the rent received, then if A sold the rights in Year 1 to a third party, one would expect the value of A's reversion in Blackacre to continue to be $1,000. Clearly, however, that is not the case. A's interest in Blackacre would be worth only the present value of $1,000 to be received in one year, or about $909. Thus, the definition of a fee, or nonwasting interest, must be able to explain this change in value arising from the sale of term interests.

In fact the difference between A's and B's incomes in Year 1 lies in the economic appreciation in the (essentially infinite) series of future interests that A's fee ownership of Blackacre represents. For example, on the first day of Year 1, A also owned the rights to the income expected to be generated by Blackacre during Year 2. On that day the right was worth approximately $82.65.\textsuperscript{72} On the first day of Year 2, the right to Year 2's $100 of rent had appreciated to $90.90. Thus, during Year 1, A had net income of $9.10 from Year 1 and $8.27 from the Year 2 right. Similarly, as the fee owner, A owned the rights to the income expected to be generated in Years 3 forward, and the same analysis applies to each of these years. The sum of these increases in value is $100. Thus, ownership of the fee means simply that one owns the expected future appreciation of the asset as well as the offsetting depreciation arising from the disappearance of the present period's receipt. Under the assumptions of constant value of the asset and constant future returns from it, annual returns will exactly equal the income from this appreciation, offset by the amortization of the loss of the current year's receipt.

This economic accrual approach is not entirely foreign to the tax law. Since 1982 a similar regime has applied to zero coupon bonds. The OID on such bonds is taxed as it accrues economically on the assumption of a constant interest rate during the term of the instrument.\textsuperscript{73} The issuer and holder treat this accrued but unpaid interest as though it had been paid and then reinvested with the issuer, so that the holder has deemed interest accruals and the issuer deemed interest deductions (subject to limitations that may apply to the deduction.

\textsuperscript{71} See Cunningham & Schenk, note 56, at 760-761 (applying this analysis to a fee interest).

\textsuperscript{72} This amount is the present value of the right to receive $100 in two years, assuming an interest rate of 10% compounded annually.

\textsuperscript{73} See IRC § 1273(a)(3).
of the interest\(^7\text{4}\)) on the principal amount and on any accrued interest deemed reinvested.\(^7\text{5}\)

The economic principles described for ownership of an ordinary fee interest in real estate in \textit{Example 3} are similar to the OID rules. In both cases income accrues to the holder of the right to future receipt based on constant yield-to-maturity principles, and in both cases this income accrues without regard to actual payment. The difference is that the owner of a fee has offsetting amortization arising from the disappearance of the present interest; this disappearance masks the economic accrual. Where, however, the owner of a fee disposes of a portion of the interest in a temporal carve-out transaction, the economic effect of these accrual principles becomes more apparent. Applying OID-like principles to such transactions helps to explicate how they should be analyzed for income tax purposes.

Perhaps the simplest example of such a carve-out transaction is the sale of a future interest in real property. Consider the following transaction, similar to that in \textit{Example 3A}:

\textit{Example 4}: \textit{A} is the fee owner of \textit{Blackacre}, real property with an adjusted basis in \textit{A}’s hands of $750 and a fair market value of $1,000. On the first day of Year 1, \textit{A} sells a future interest in \textit{Blackacre} to \textit{B} for $826. The contract entitles \textit{B} to take possession of \textit{Blackacre} on the first day of Year 3. Prior to Day 3, \textit{A} retains all rights to income from \textit{Blackacre}, which she holds as a capital asset. \textit{Blackacre} is subject to a lease for a term of years to a third party at an annual rent of $100 and is expected to generate $100 of income annually for the foreseeable future.

Under current law, \textit{A} allocates basis in the interests sold and retained according to their relative fair market values and recognizes a capital gain in Year 1 of $206.61 on the portion sold.\(^7\text{6}\) In Year 3, \textit{A} likely recognizes a capital loss of $120.17, representing the difference between the basis assigned to the retained interest\(^7\text{7}\) and the zero value

\(^7\text{4}\) See, e.g., IRC § 163(j) (disallowing interest deduction to certain highly-leveraged corporate issuers), § 163(l) (disallowing interest deductions to certain corporate issuers where interest is payable in issuer’s equity).

\(^7\text{5}\) IRC § 1272 (holder’s accrual), § 163(e) (issuer’s deduction).

\(^7\text{6}\) See Reg. § 1.61-6(a) (requiring equitable apportionment of basis among retained and sold portions of property); Hunter v. Commissioner, 44 T.C. 109, 115 (1965) (applying regulation to the sale of a term interest). Since the fair market value of \textit{Blackacre} is $1,000, \textit{A} allocates 82.64% of his basis in \textit{Blackacre}, or $619.83, to the portion sold, which yields a gain of $206.61.

\(^7\text{7}\) Although the tax treatment of retained wasting assets in property is somewhat uncertain, it appears that holders of such assets may not amortize their basis. See, e.g., Lomas Santa Fe, Inc. v. Commissioner, 693 F.2d 71, 72-73 (9th Cir. 1982). As explained above,
of that interest in Year 3. As a capital loss this amount generally is not available to offset the $200 of ordinary income A received under the lease.  

B takes a basis of $826.45 in Blackacre in Year 1, which is unaffected by the transfer of possession to B in Year 3. B recognizes this built-in gain, if at all, on disposition of Blackacre in the future.

The foregoing example demonstrates the conceptual problems underlying current law. While taxpayers allocate basis accurately, they do not properly account for the effect of the passage of time on the economics of the transaction. Although A’s retained interest decreases in value by reason of the passage of time and B’s enjoys a concomitant increase, neither party treats these changes in value in accordance with their economic substance—in this case, as akin to interest earned or paid. The inconsistency may seem relatively benign in this context, since one party’s underinclusion is matched by the counterparty’s overinclusion, but tax symmetry is not necessarily to be expected in carve-out transactions. Where, for instance, A and B are in different tax brackets, or one of the parties is not subject to U.S. tax, or the transaction is motivated by tax considerations such as A’s desire to shelter capital gain, the carve-out offers the opportunity for tax arbitrage or other gamesmanship. These problems are especially apt to arise in the financial products context, where taxpayers may take advantage of the liquidity of markets in financial instruments to exploit asymmetries.

Application of the carve-out analysis to the preceding transaction would rectify these distortions. The carve-out approach applies to the taxation of a temporally limited interest, such as the retention of a wasting asset, in much the same way as to B’s income interest in Example 3A, taking into account the accrual and loss that arise by virtue of the passage of time. To see how this analysis would apply, it is useful to examine bond-stripping transactions, the principal area in which Congress has expressly provided tax rules that correspond to the economics of a carve-out transaction.

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78 For purposes of the example, I assume that the offset is unavailable. For example, A could be a corporation, unable to offset ordinary income with capital loss, IRC § 1211(a), or A already could have applied the $3,000 of available loss to other income, IRC § 1211(b).

79 If B holds the property until death, the gain is never recognized. IRC § 1014.


81 See IRC § 1286.
2. Bond-Stripping Transactions

In a bond-stripping transaction, the owner of a bond disposes of some combination of one or more rights to receive interest payments on the bond—so-called coupons—and the underlying right to payment of bond principal on maturity—the strip. In the absence of special rules governing such a transaction, the seller of coupons might not be required to allocate basis to the coupons sold or retained because they nominally represent interest, not principal; all basis would remain in the strip. Such a rule offers opportunities for tax-motivated behavior, if, for example, the seller could use expiring net operating losses to shelter the income from a coupon sale and enjoy no gain or loss on maturity of the strip. Similarly, the sale of a strip would permit recognition of an immediate capital loss, since all basis would be allocated to the strip, but the strip would have an economic value lower than its face amount.82

In 1984 Congress enacted § 1286 in order to address these problems.83 Section 1286 requires the transferor to allocate basis in the bond to items disposed of in proportion to their relative fair market values and to recognize ordinary income in an amount equal to the sum of any accrued but unrecognized interest and market discount on the entire bond immediately prior to the disposition.84 The transferor’s basis in the bond then is increased to reflect this inclusion and also is allocated to the portions of the bond retained and disposed of according to their relative fair market values. Any additional gain (or loss) realized on the transferred portions is reported as capital gain (or loss), assuming the bond is held by the transferor as a capital asset. Where the stripping transaction is a sale, the transferee takes a basis in the items purchased equal to the portion of the purchase price allocable to each of them based on their relative fair market values and treats each piece as an OID bond that accrues currently taxable interest until maturity. Where the transferee’s basis is determined with reference to the transferor’s basis (as, for instance, in the case of a gift), the transferee’s basis generally is equal to the basis the transferor allocated to the transferred portions immediately prior to the disposi-

84 Accrued but unrecognized interest is taxed according to the OID rules. IRC § 1286(a). Market discount, which represents the difference between a debt instrument’s stated redemption price at maturity and the price at which it is purchased in the secondary market (after accounting for any OID), generally is allocated ratably, or on straight line basis, to the periods between the purchase date and the maturity date, is treated as ordinary and, absent an election to the contrary, is taken into income only on disposition or retirement of the instrument. IRC §§ 1276-78.
tion. As in a sale transaction, the transferee treats the acquired bond items individually as OID bonds.

The transferor also is treated as having sold and repurchased the retained portions of the bond for an amount equal to their basis, as adjusted to reflect prior interest inclusions. The result of this deemed sale and repurchase is to preserve any inherent gain (or loss) in the retained portions until disposition or retirement of the bond but to start the transferor's holding period anew. Each piece retained is treated individually as an OID bond.

The reason this approach is correct is that prior to the stripping transaction the bondholder is actually in the same economic position as the owner of a fee interest in Blackacre. That is, economically the payment of interest on an ordinary bond represents both a payment of interest and a return of principal in respect of a self-contained asset, just as the receipt of a rental payment in Example 3 economically represents both the receipt of rental income and return of capital. And as in Example 3, this fact is masked because the other bond items, which represent the rights to future payments on the instrument, also appreciate during the interest period, in just the way that maturing rights to future payments on Blackacre appreciated in Example 3. This appreciation, which is the same as OID interest, is exactly equal to the amount of returned principal in respect of the presently maturing coupon, so that the total amount of interest earned in respect of the entire bond during the coupon period is equal to the face amount of the coupon.

3. Application of Bond-Stripping Analysis to Temporal Carve-Out Transactions

Analogizing to § 1286, the proper treatment of the transaction described in Example 4 becomes clearer. A's sale of the remainder interest is akin to the sale of a bond strip. It is a present disposition of a property interest, not an open transaction whose tax consequences await the transfer of Blackacre. Treatment of the sale as a stripping transaction property preserves realization treatment for the parties'
assumption of genuine investment risk while requiring current accrual (or deduction) for changes in wealth resulting from the passage of time. Under this approach A allocates basis in the sold and retained portions of Blackacre in proportion to their relative fair market values and in Year 1 computes gain on the portion sold. A’s basis in the transferred future interest is $619.83. A allocates all of the sale proceeds of $826 to the purchased future interest and recognizes gain of $206.61. So far there is no difference from the treatment under existing law. During the period from Year 1 to Year 3, however, the parties would take appropriate account of the effects of the passage of time on their interests. A has retained a wasting property interest, while B has purchased an appreciating one.

The treatment of B is relatively straightforward. She has purchased an asset that will increase in value by reason of the passage of time, an increase identical to the increase associated with ownership of an ordinary capital asset, as described in Example 3. The difference is that B has no offsetting current depreciation because A has retained the present interest. As a result, B has income but no loss. This income accrues on the same constant-yield-to-maturity basis that applies to OID and that is tacitly assumed in the case of fee ownership of capital asset. On the facts of the example, the rate is 10%.

The treatment of A is somewhat more complicated, owing to the fact that her basis in the retained interest differs from its fair market value. The retained interest is akin to a bank account with an initial balance equal to A’s basis, or $130.17, that produces income sufficient to permit A to withdraw $100 annually for two years, leaving zero after the final withdrawal. The implicit rate of return on A’s basis is greater than the market rate of 10% because the property has appreciated in A’s hands. On the facts of the example, this implicit

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88 $619.83 is 82.6% of A’s total basis of $750.
89 It might be argued further that A has an additional obligation to deliver property worth $1,000 in Year 3 that offsets her income from the retained interest. The amount of this liability in Year 1 is $826.45. This liability is offset, however, by A’s possession of property that can satisfy the liability. This property is also worth $826.45 and appreciates at the same rate as the offsetting liability, so that the obligation to deliver the property can be disregarded. This issue arises in slightly different form in the case of an ordinary forward contract, where the cash paid changes hands on the same day as the property. There it is appropriate to take the liability into account because of the fungibility of cash. See Section IV.A.
90 That is, if one applies a 10% rate compounded annually to the value of B’s interest as measured on the date of purchase, then on the day B takes possession under the contract her interest will equal the fair market value of Blackacre as measured in Year 1, or $1,000.
91 A’s basis is the fraction of the fee in Blackacre she retained, 17.36%, multiplied by her $750 basis in Blackacre.
92 The fair market value of the retained interest in fact is derived from the market rate, here 10%. Applying this rate to the right to receive $100 annually for two years yields a present value of $173.55.
rate is 34.1%. In effect, A enjoys inframarginal returns on her investment, reflecting the tax law's assumption that capital does not change in value during the taxpayer's holding period. The question is how to treat the portion of A's annual return attributable to the difference between the fair market value of the retained interest, $173.55, and A's $130.17 basis in it. Is it a capital gain that requires recognition at some point during the carve-out term, or is it ordinary income that should be treated as accruing during the same period?

At first blush, taxing this difference as capital gain may seem correct because the gain reflects the difference between the present value of the interest and the amount A has paid for it. Certainly if A had sold the present interest on the first day of Year 1 to a third party, this amount would have been capital gain income. Under this analysis, the $43.38 is imputed to A as additional capital gain income that supports receipt of what otherwise would be inframarginal returns. The problem with this approach is that A's retained interest is a wasting asset that does not change hands, while capital gain generally is taxed prospectively as a substitute for expected income from future periods. It is not taxed retrospectively as appreciation that supported increased returns (or increased expected future returns) during the seller's holding period. The $43.38 of built-in gain, however, is the gain that is locked into the time-slices of Blackacre that A retains, not expected value relating to periods beyond the term of the retained interest. These observations indicate that the $43.38 should be taxed to A as ordinary income rather than capital gain, because none of A's income from Blackacre during Years 1 and 2 represents a payment for expected future income from the property. Though it may seem anomalous to disregard the capital appreciation that is a correlative to A's inframarginal returns, doing so is fully consistent with the treatment of the holder of any appreciated property prior to disposition. Consider, for example, two taxpayers, C and D, each of whom buys income-producing real estate for $750 on Day 1 as a capital asset. Assume that C's property immediately appreciates to $1,000 because it generates returns in excess of the amount anticipated on the purchase date, $130.17 earning 34.1% compounded annually permits A to withdraw $100 at the end of Year 1 and $100 at the end of Year 2 with zero left.

94 Proposals for retrospective capital gains taxation date from at least 1939 but have never been adopted in this country. See William Vickrey, Averaging Income for Tax Purposes, 47 J. Pol. Econ. 379 (1939) (proposing retrospective capital gains tax). These proposals generally would tax the holder's economic capital gains and losses that accrued during the taxpayer's holding period at the time of disposition of the asset. Italy recently has experimented with this regime, to mixed success. See Julian Alworth, Giampaolo Arachi & Roni Hamau, Adjusting Capital Income Taxation: Some Lessons From the Italian Experience (Univ. di Lecce Dep't of Economics Working Paper No. 23/10, Aug. 1, 2002), available at http://papers.ssrn.com/paper.taf?abstract_id=407380.
while D's property continues to return the expected amount and remains at $750 for five years. On the first day of Year 6, D's property appreciates to $1,000, while C's property maintains its $1,000 value at all times during this period. If both C and D sell their property to third parties for $1,000 on the first day of Year 6, the only difference between their tax treatments is that C will have had substantially greater ordinary income. On the sale date both C and D will have $250 of capital gain. The excess return that C's property yielded during the holding period is not subject to capital gains tax; rather the capital gains tax that each owes reflects the expected future value of their interests.

A's inframarginal returns in Example 4 are analogous to C's returns in the example described above. The difference between A and C is that prior to the sale of the property in Year 6 C has retained the rights to all future periods, so that a sale of her property produces capital gain, inasmuch as the value of the rights to these periods exceeds C's basis. A has sold to B all future periods other than Years 1 and 2, which she has elected to retain, just as C retains the returns from her property in Years 1 through 5. In neither case do the excess returns from the retained periods generate capital gains to the holders.

4. Conclusion on Temporal Carve-Out Transactions

The principles described above could be worked out in much greater detail for a variety of other, more complicated transactions, as a number of commentators have done. The object here, however, is not to revisit this territory, but to give an account of the basic theory of temporal carve-out transactions as a prelude to its application to financial instruments, and in conjunction with the different set of rules that, I argue, should apply to risk-based carve-outs. The thrust of the carve-out theory is that because property rights consist economically of spatial and temporal components, the tax treatment of income from property needs to track these components. In the ordinary case, where property remains temporally undivided, this temporal dimension is masked because accruals with respect to future periods precisely offset (or, under realization principles, are deemed precisely to offset) current depreciation that arises as present interests become valueless. The result is that actual receipts in respect of the property equal the real economic income that the property generates, so that

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95 See, e.g., Cunningham & Schenk, note 56, passim (applying this approach to a variety of assets).
Temporal divisions, however, undermine this equivalence because they sever future appreciation from present depreciation. The owner of a temporally limited property right therefore will have current depreciation in excess of appreciation in future rights (for the owner of the present interest), or the reverse (for the owner of a future interest). In the absence of rules that require tax accounting to follow these economic consequences, distortions of both the timing and the character of income result. This outcome is most evident in the basic coupon-stripping transaction, where payments that economically represent a return of principal and interest nominally are either all principal (in the case of the strip) or all interest (in the case of a coupon), but it occurs in any transaction in which payment or the right to payment is fixed before the subject property changes hands. As indicated, such transactions frequently are building blocks of modern financial instruments. Application of the principles described in the preceding discussion would remove these distortions and address much of the discontinuity and inconsistency that arise under current law.

B. Risk-Based Carve-Out Transactions: Taxation of Options

As suggested at the beginning of this Section, the universe of carve-out transactions comprises not only temporal but also risk-based carve-outs. Carve-out transactions that could be described as risk-based involve the contingent disposition of benefits or burdens of ownership and, I argue, are importantly different from temporal carve-outs, though they are carve-outs nevertheless.96

The building blocks of risk-based carve-out transactions are options.97 Options involve the transfer of property based on the satisfaction of a contingency. They take two basic forms: A call option, or call, grants the owner of the option the right to purchase property at a specified price (the strike price) at a specified time or times in the

96 The close connection between temporal carve-outs and risk-based carve-outs can be seen from the fact that a temporal carve-out represents a special case of risk-based carve-outs. It is simply an option with a strike price of zero. See Section V.

97 Other kinds of risk-based carve-outs are possible, but I do not treat them here. For example, a contingent forward contract, pursuant to which the seller transfers property to the buyer on the occurrence of an event or subject to a contingency (other than that of the asset’s attaining (or failing to attain) a certain price, in which case the transaction generally is an ordinary option) is a contingent carve-out transaction. Contingent transactions of this type raise questions of their own that are separate from the treatment of option contingencies. See Matthew A. Stevens, The Tax Treatment of Contingent Options, 102 Tax Notes 525 (Jan. 26, 2004).
future (the strike date); a put option grants the owner of the option the right to sell property at a given strike price on the strike date. Both call and put options may be exercisable on only one strike date (European options), or at any time during one or more periods (American options). An option is physically settled where property is transferred pursuant to the exercise of the option; an option is cash settled where the option holder receives the cash value (if any) of the option on the strike date. For example, if on Day 1 S pays P $5 for a cash-settled put option on one hundred shares of X Corp. stock with a strike price of $100 on Day 2, then on Day 2 either the option will lapse (where the value of X Corp. stock exceeds the strike price) or P will pay S the difference between the strike price of the option and the fair market value of the X Corp. stock on that date. No X Corp. stock will change hands pursuant to the option (or even need be owned by either S or P).

1. Existing Approaches to Option Transactions

Agreement over the economic substance, and therefore the proper tax treatment, of option transactions is lacking. The view long taken by the tax law is that the sale of an option ordinarily does not represent a disposition of the property to which the option relates. Rather the option sale is treated as an open transaction whose tax treatment must await exercise, lapse, or other disposition of the op-

98 For ease of exposition, the following discussion assumes that options are European options and, unless otherwise stated, are physically settled. In the case of options on stock that does not pay dividends, the European option easily generalizes to the corresponding American option the last exercise date of which is the exercise date of the European option.

In general for such American options, there is no reason to exercise a call option prior to the final date on which it may be exercised. See Shulderer, General Approach, note 6, at 310-11. The same holds true for put options, except where the value of the property subject to the put is less than the interest income that the proceeds of exercise will yield. See Richard A. Brealey & Stewart C. Myers, Principles of Corporate Finance 607 (7th ed. 2003).

99 See Rev. Rul. 78-182, 1978-1 C.B. 265. Exceptions to this rule include deep-in-the-money options that have a strike price much lower than the underlying property's fair market value and options with large premiums relative to the strike price that are credited to the purchase price if the option is exercised. Because of the high likelihood of the exercise in both cases, the sale of such options generally is treated as a disposition of the underlying property. See Rev. Rul. 82-150, 1982-2 C.B. 110 (sale of call option for 70% of fair market value of underlying stock with strike price equal to 30% of price of underlying stock was sale of the stock); Rev. Rul. 85-87, 1985-1 C.B. 268 (sale of stock followed by sale of "deep-in-the-money" put treated as constructive repurchase of stock sold for purposes of wash sale rules of IRC § 1091); Reg. § 1.1361-1(l)(4)(iii)(A) (stating that a deep-in-the-money option may be treated as a class of stock to which it relates for purposes of the one-class-of-stock rule of subchapter S).
tion (including cancellation). Only at that time can the nature of the income or loss associated with the option transaction be ascertained and, therefore, properly taxed.

**Example 5:** On Day 1, A, the owner of 100 shares of ABC stock having a fair market value of $100 and an adjusted basis in A’s hands of $90, sells to B for $2 an option to purchase the stock on Day 2, one year later, for $100. On Day 1, A has held the ABC stock for more than one year as a capital asset.

Under current law A does not recognize the $2 option premium on Day 1 because it is not possible to ascertain the character of the $2 at that time. If B exercises the option, the $2 is part of A’s amount realized on the sale of the stock and is long-term capital gain; if B does not exercise the option, A has $2 of gain but not in connection with the sale of a capital asset held more than one year. Accordingly, A must wait until the option is exercised, lapses, or otherwise terminates to determine her tax treatment. If B exercises the option, the premium is part of A’s amount realized, and she has $12 of long-term capital gain. If B does not exercise it, A has $2 of short-term capital gain. B, the holder of the call, generally treats amounts paid for the option as a nondeductible capital expenditure. If B exercises the option, she adds its cost to her basis in the property, and if the option lapses or B sells the option, gain or loss with respect to the option has the same character as the property to which it relates would have in B’s hands. Cancellation of the option generally has the same effect as lapse.

Analogous treatment applies to a put option. If, in Example 5, A instead had purchased a put option from B at the same price, A’s and B’s treatments of the option premium would await exercise, lapse, or termination of the option. If exercised, A would reduce the amount realized by the option premium and B would reduce her basis in the

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100 See Burnet v. Logan, 283 U.S. 404 (1931). Where the option purchaser transfers the option to a third party prior to the exercise date, the transaction is closed with respect to the transferor but remains open with respect to the option writer. See IRC § 1234; see IRC § 1234A (dealing with, among other transactions, option cancellations).

Note that open transaction treatment does not apply to certain publicly-traded options, such as nonequity and dealer options. IRC § 1256(b). These options generally are subject to mark-to-market treatment. IRC § 1256(a).


102 See IRC § 1234(b). Section 1234 is a specific statutory override to prevent taxpayers from treating the gain as ordinary.


104 See IRC § 1234(a).

105 See IRC § 1234A.
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stock by the same amount.\textsuperscript{106} If the option lapsed or were otherwise terminated, A would have a long-term capital loss and B would have short-term capital gain.\textsuperscript{107}

A number of commentators have rejected the open transaction approach of current law as based on a flawed view of the underlying economics of option transactions, or as inconsistent with established tax rules regarding claim of right and constructive receipt. Calvin Johnson has argued, for example, that option premiums should be subject to tax on receipt and treated as ordinary income to the option writer, because the option transaction does not represent, in his view, a disposition of part of the underlying property but a separate transaction generating ordinary income.\textsuperscript{108} Bruce Kayle has argued that whether one views the sale of a call option as a service provided by the option writer or as the purchase of part of the property, established tax rules do not appear to support deferral of tax for the option premium. He also notes that an option can be likened to a partnership, in which case returns generated by the underlying property may be taxed to the call option holder or put option writer, rather than to the owner of the property itself, if the partnership contract so provides.\textsuperscript{109} Noël Cunningham and Deborah Schenk have argued that a carve-out analysis akin to that applied to the forward contract described in the preceding Subsection should apply to option transactions, because the property owner parts with benefits or burdens of the underlying property in connection with the execution of the option contract.\textsuperscript{110}

Although each of these views reflects a justified unease with the rule that a taxpayer’s unrestricted right to the option premium somehow should go untaxed until a future date, Cunningham and Schenk’s approach comes closest to what I argue is the proper treatment of options. The strength of their approach is that it focuses on the changes that the option transaction effects in the economic relationships of the parties to the underlying property, and, as I argue below, the most accurate economic analysis of options views them as a kind of property disposition. Outside of the financial products area, entitlement to benefits and bearing of burdens is, of course, the touch-

\textsuperscript{107} See IRC § 1234(a), (b).
\textsuperscript{109} Bruce Kayle, Realization Without Taxation? The Not-So-Clear Reflection of Income From an Option to Acquire Property, 48 Tax L. Rev. 233, 261-62 (1993) (concluding that treatment of option premiums under the open transaction doctrine is in tension with treatment of similar payments outside of the option context), 270-75 (discussing the option-partnership example).
\textsuperscript{110} Cunningham & Schenk, note 56, at 775-84.
stone of economic ownership for federal tax purposes,¹¹¹ and Cunningham and Schenk's motivating idea is that in economic terms an option transaction is tantamount to a division of these indicia of ownership. In substance, on their view, an option represents a present sale of a future interest in the underlying property. The only relevant difference from an ordinary prepaid forward contract is that the option is for a contingent part of the property.¹¹² For example, a call option is for the contingent appreciation above the option strike price on the exercise date, rather than for all or a fixed portion of the property on that date. But in both the ordinary temporal carve-out case and the call option contract, the seller has parted with value that relates to the property in exchange for present consideration. Thus, under this approach, in Example 5, B would be viewed as purchasing on Day 1 a contingent portion of the remainder in the ABC stock, given by the ratio of the option price to the remainder value on Day 1, which is $90.91. A would recognize $.20 of gain on the sale of the option, and each party would accrue and recognize gain on the contingent portion she owned during the pendency of the option, with a final reckoning on exercise or lapse. In the case of exercise, A would have gain and B would take a carryover basis; in the case of lapse, A would simply leave her total basis at the accrued value on the lapse date and B would have a capital loss.¹¹³

One difficulty with this analysis is that it is hard to see how it applies to a put option, because it is not intuitively clear how one can view the purchase of the right to dispose of the property at a fixed price as the transfer of a part of the property.

Example 5A: On Day 1, A, the owner of 100 shares of ABC stock having a fair market value of $100 and an adjusted basis in A's hands of $90, buys from B for $2 an option to sell

¹¹¹ See David S. Miller, Taxpayers' Ability to Avoid Tax Ownership: Current Law and Future Prospects, 51 Tax Law. 279, 285-90 (1998). The benefits and burdens criterion as a general matter has not carried over to derivative financial instruments, in part because of the ease with which identical economic returns can be replicated without title ownership. See Dolan & DuPuy, note 53, at 173 (noting that legal ownership and possession generally suffice to determine tax ownership of publicly traded securities). Cf. Kleinbard, Risky and Riskless, note 52, at 784 (noting that, in contrast to the basic benefits and burdens analysis applicable in other areas, tax ownership of publicly traded securities is "necessarily . . . formalistic"), 785 (noting that no definitive set of ownership criteria exists under the Code, administrative authority, or court decisions).

¹¹² A prepaid forward contract is a forward contract where the purchaser pays for the property prior to its delivery date. See Section IV.A.

¹¹³ See Cunningham & Schenk, note 56, at 779-81. The authors also analyze option transactions under a "separate transaction" theory according to which the option payment consists of two transactions: a loan from the option holder to the writer that is paid off on the exercise date, and a separate right to purchase, on the exercise date, the property at the strike price. This right is paid for on the exercise date. Id. at 781-82.
the stock to $B$ on Day 2, one year hence, for $100. On Day 1, 
$A$ has held the $ABC$ stock for more than one year as a capital asset.

In Example 5A, the option relieves $A$ of a potential liability. The 
sense in which $A$ has parted with a portion of the value of the $ABC$ 
stock, contingent or otherwise, is not immediately clear. Rather, it 
appears she has in effect acquired an insurance policy with respect to 
it; she has acquired downside protection. Although Cunningham and 
Schenk apply a mirror image of the call option treatment to this op-
tion, the reasons for doing so are somewhat obscure.\textsuperscript{114} The principal 
justification of the carve-out analysis is that it is the appropriate way 
to account for present sales of nonspatial interests in property. View-
ing the purchase of a put option as relief from a liability seems in-
consistent with this approach, because the relief of a liability does not 
appear to be equivalent to a transfer of property. Unlike a temporal 
carve-out, no time-slice of property itself is transferred in a put option; 
instead what is commonly viewed as an aspect of property owner-
ship—that one bears the risk of a decline in value—is transferred.

The foregoing suggests that the temporal carve-out approach should 
not apply to call options either. At least two aspects of call options 
support this conclusion. First, the temporal carve-out approach views 
the call option transaction as the purchase of the contingent apprecia-
tion in the underlying property. In fact, exercise of the option, if it 
occurs, will result in a transfer of all the property. The same will be 
true of put options. Second, and more basically, property does not 
seem to be reducible to “appreciation,” contingent or otherwise, any 
more than it is reducible to “risk of loss.” Appreciation and risk of 
loss are characteristics of property, not property itself. Viewing an 
option sale as the sale of “property” consisting solely of appreciation 
or liability is mistaken because it treats a feature of property—that it 
can increase or decline in value—as itself property.\textsuperscript{115}

\textsuperscript{114} See Cunningham \& Schenk, note 56, at 783 (“[W]hat is carved out . . . is a liability, 
rather than a portion of the beneficial ownership.”), 784 (stating that the writer of the put 
option has an “interest” in the subject property, “albeit in the nature of a liability”).

\textsuperscript{115} The purchase of a cash-settled call option from the property owner might seem to 
represent a counter-example to the argument, since the purchaser acquires the right to 
receive cash representing appreciation, not the property itself. But in that case the seller of 
the property retains the rights to appreciation and depreciation, and payment under the 
option contract represents merely a personal obligation of the option writer. The option 
holder has not purchased the appreciation; she has merely purchased the right to its value, 
while the seller has retained the property together with the appreciation. See Prop. Reg. 
§ 1.1058-1 (characterizing payments pursuant to a securities lending transaction as a per-
sonal obligation of the party to the transaction and not as made on the underlying secur-
ity). A similar analysis applies to a cash-settled call option where neither party owns the 
underlying property.
At the same time, the intuition that the execution of an option contract represents the present disposition of a property interest is not unfounded. What guides the intuition is the fact that in the case of writing either a put or a call, the economic interests of the option writer and the option holder in the underlying property change. In particular, the option transaction effects a division of benefits and burdens in the underlying property between the parties to the contract. As stated, retention of benefits and burdens ordinarily is the touchstone of property ownership for tax purposes, and it is therefore reasonable to view the execution of the option contract as some kind of a carve-out transaction. In fact, an option represents a kind of transaction that involves more than the disposition of a portion of the underlying property. It involves such a disposition, together with a separate but related debt transaction. It is this separate debt transaction, and its interaction with the underlying property transfer, that gives the option it “optionality”—its property as, fundamentally, a hedging transaction, as Cunningham and Schenk describe. Cunningham and Schenk’s analysis of the option as a property transaction therefore is not so much incorrect as incomplete. The next Section discusses the consequences of treating an option according to its complete nature as a transaction combining a distinct property purchase and a loan.

2. Dynamic Hedging Approach to Option Transactions

The complete analysis of options as debt and equity transactions was developed by modern finance theory. As contrasted with both the open transaction treatment of current law and the analogical approaches advocated by Johnson, Kayle, and Schenk and Cunningham, the transactional equivalents established by finance theory are exact, if somewhat idealized. Further, these transactional equivalents have a well-established tax treatment. If it is possible to analyze an option contract in terms of equivalents about which there is no question regarding tax treatment, one may arrive at an approach for the taxation of option contracts that at least is consistent with their underlying economics. Whether the approach turns out to be consistent with the taxation of similar instruments is a further question to be addressed in connection with efforts to eliminate inconsistency and discontinuity in the taxation of financial instruments, which I take up in Section IV.

a. Call Option

i. Simplified Case

Fischer Black and Myron Scholes provided the first approach to the analysis of option contracts that accurately modeled options that are
actually marketed to investors. In an effort to derive a formula for
the pricing of call options, they demonstrated how the economic re-
turns from the purchase of a European call option on nondividend
paying stock could be precisely replicated by a process of continuous
hedging, or arbitrage. Arbitrage in this context consists in the estab-
ishment of an initial equivalence between the option on one hand,
and the purchase of a portion of the underlying property, together
with borrowing, on the other, and the subsequent maintenance of the
equivalence by constant adjustment of the ratio of deemed asset own-
ership and deemed borrowing during the life of the option as the de-
terminants of option value change. That is, the actual change in
value of the option over time can be thought of in a precise way as
changes in amounts of the asset deemed purchased and amounts
deemed borrowed at each instant. Since the costs of publicly-traded
stock and of borrowing are readily ascertainable, Black and Scholes
offered a method that accurately prices call options on nondividend
paying stock in liquid markets. Subsequent refinements have devel-
oped models for more sophisticated options and for options on divi-
dend-paying stock.

The starting point for this theory is the observation that it is possi-
table to replicate a risk-free investment by purchasing an asset and
hedging it through the sale of some number of call options on the
asset, and by continuously adjusting the ratio of these two amounts
over the term of the instrument. The ratio of the number of calls
sold to every unit of the underlying asset purchased is a function of
the determinants of option prices generally, the most significant of
which are volatility in the price of the subject property and the reduc-
tion of time to the strike date. If an investor could continuously
buy and sell fractional amounts of both the asset and calls, and incur
no transaction costs in doing so, the price she paid for the asset and
the amount realized in any given iteration would always exactly suf-

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116 Fischer Black & Myron Scholes, The Pricing of Options and Corporate Liabilities, 81

117 The most significant limiting assumptions are that the market for the stock is liquid
and that there are no transaction costs. In addition, the model assumes, among other
things, that no dividends are paid on the stock. Id. at 640.


119 See id. at 461 (discussing Black-Scholes derivation from the binomial pricing model
described in the text here). Alternatively, one could sell the stock short and purchase
options. Id.

120 The other determinants are strike price, asset volatility, and the risk-free rate of re-
turn. Brealey & Myers, note 98, at 591-608. Black-Scholes treats these determinants as
invariant in order to simplify the analysis. Black & Scholes, note 116, at 640. Other option
pricing models take some or all of these factors into account to greater or lesser degrees,
and may apply to American options and/or to options that pay dividends. See Haugen,
note 118, at 470-71.
fice to enable her to enter into the proper combination of asset ownership and call sale to preserve the risk-free investment in the next iteration. That is:

\[ Z = \text{Asset} - X \times \text{Call}, \]

where \( Z \) is the zero coupon bond replicated by the purchase of an asset and the sale of some number of call options that perfectly hedges ownership of the asset on the date the equivalence is established, and \( X \) is that number. In order to preserve the equivalence with \( Z \) over time, an investor would need to adjust both the amount of the asset owned and the number of calls sold.

One can derive the formula for the call price by algebraic manipulation:

\[ \text{Call} = (\text{Asset} - Z)/X, \]

where the minus sign indicates borrowing. Like the original equivalence, the option equivalence is maintained only on the assumption of a continuous adjustment of the equivalent position. That is, the pattern of deemed borrowing and deemed asset ownership must be adjusted continuously to continue to replicate the option.

The following example illustrates these relationships in the context of a simplified option:\(^{121}\)

*Example 6:* ABC stock, worth $30 on Day 1, will be worth either $21 or $45 on Day 2, one year after Day 1. On Day 1, B sells A an option to buy one share of ABC stock at $33, exercisable only on Day 2. On Day 1, the risk-free interest rate is 10%. At all times from Day 1 to Day 2, B is the record owner of the ABC stock, which pays no dividends.

On Day 2, the option will have a payoff of zero if the stock is worth $21, and $12 if the stock is worth $45, in which case A will exercise the option and hold one share of ABC stock. We would like to know the price of the option on Day 1. As an initial step in determining the price of the option on Day 1, one can reformulate the question of option price in terms of the hedging model described above. If one wanted to replicate a risk-free investment using ABC stock and call options on it, one could do so by purchasing some amount of the stock and selling some amount of the calls, such that after one year the net value of the combined positions would be the same no matter what happened to the stock price. Since such a portfolio would be risk-free, its present value would be equal to the present value of a bond maturing on the strike date and having the value of the portfolio on that date.

\(^{121}\) This example is similar to that discussed in Brealey & Myers, note 98, at 592-94.
The ratio of stock purchased and call options sold is given by the ratio of the spreads in value they may have at year's end.\textsuperscript{122} A share of $ABC$ stock has a possible spread of $24$ ($45 - 21$), while the option has a possible spread of $12$ (that is, $12$ if the stock is worth $45$ and zero if the stock is worth $21$). In order to ensure that the call sales offset the stock investment, one therefore would have to sell two calls for every share of stock purchased. An investor who did so would have the same net value at year's end no matter what happened to the stock price. If the stock went to $21$ she would have one share of stock and no option obligations outstanding. If the stock went to $45$ she could buy two additional shares to satisfy her obligations under the options; these transactions would result in a $24$ loss but would leave her with stock worth $45$, for a net value of $21$. Such a portfolio would be risk-free because it has the same value no matter what happens. Its present value on Day 1 therefore should be the amount that, if invested at the risk-free rate, would appreciate to $21$ in one year, or $19.09$ on the facts assumed. Since the portfolio consists of the purchase of one share of stock and the sale of two calls, and the stock costs $30$, the sale must yield $10.91$ ($30 - 19.09$), for a price of $5.46$ per call.\textsuperscript{123}

Reformulating the initial equivalence as an expression of the option price, we may say that the purchase of two options is equal to the purchase on Day 1 of one share of $ABC$ stock and borrowing $19.09$ at the risk-free rate, or that a single call is equivalent to the purchase of one-half of a share of the stock and borrowing $5.46$:

\begin{align*}
\text{Value of two calls} &= \text{value of one share} - \text{\$19.09 loan} = \$30 - 19.09 = \$10.91. \\
\text{Value of one call} &= 5.46.
\end{align*}

A number of consequences follow. First, the demonstration shows that, at least in the case of a simplified option, it is possible to express the option precisely in terms of positions in debt and equity—two instruments whose tax treatment is straightforward. As contrasted with the analogical approach applied by other commentators, this equivalence is exact; ownership of a simplified option is the same as asset ownership plus borrowing. Second, the example supports the Cunningham and Schenk view that the execution of a call option results in a constructive disposition of a portion of the underlying property, though it is not consistent with their treatment of the option as a disposition of solely a fixed part of the underlying property.

Finally, the result is consistent with the intuition that the extent of the disposition is closely correlated with the extent of built-in gain in

\textsuperscript{122} See Haugen, note 118, at 432.

\textsuperscript{123} Amounts are rounded to nearest cent.
the option. That is, as the exercise price drops relative to underlying asset value, the price of the option increases, corresponding to a deemed sale of a greater portion of the underlying asset on the option sale date.\textsuperscript{124} The following modification of Example 6 corroborates this principle.

\textit{Example 6A:} The facts are the same as in Example 6, except that the strike price of the option is $29.

In Example 6 an exercise price of $33 yielded a deemed purchase of one-half of a share of \textit{ABC} stock.\textsuperscript{125} If, as in Example 6A, the exercise price drops to $29, the maximum option payoff is $16 ($45 - $29). The maximum payoff from owning a share would still be $24 ($45 - $21), or 1.5 call options. The value of 1.5 calls would be $10.91 ($30 - $19.09), for a value of $7.27 for one call. The option purchase transaction therefore would be treated as the purchase on Day 1 of two-thirds of a share of stock for $20 and borrowing on that date of $12.73 to purchase two-thirds of a share on Day 2 for $14. It readily can be seen that analogous results apply where the strike price of the call option is higher—a lower portion of the underlying asset is deemed purchased, and a lesser amount is borrowed.

As a first step to making this model explanatory for tax purposes, it is necessary to complete the posited equivalence between a simplified call option purchase and a stock purchase plus borrowing, by deeming appropriate property dispositions and loan repayments to take place.\textsuperscript{126} Under the facts of Example 6, the following constructive transactions suggest themselves: On Day 1, \texti{A} purchases one-half of a share of \textit{ABC} stock for its fair market value of $15 and borrows $9.54 at 10%. If the stock goes to $21 on Day 2, \texti{A} would be deemed to sell his one-half share of \textit{ABC} stock at its fair market value on that date and to use the proceeds to pay off the loan at $10.50. \texti{A} would have a capital loss of $4.50 on the stock\textsuperscript{127} plus $.96 of interest expense, for a net loss of $5.46. This loss is equal to the purchase price of the call option. These transactions would leave \texti{A} with no \textit{ABC} stock, just as

\begin{itemize}
  \item \textsuperscript{124} The deemed sale of a greater portion is also consistent with the tax rule treating the purchase of a deep-in-the-money option as a purchase of the underlying asset. See authorities cited in note 99; see also F.S.A. 200202057 (Jan. 11, 2002) (applying principles of Rev. Rul. 85-87 to treat the sale of an in-the-money call option on stock as a sale of the underlying stock).
  \item \textsuperscript{125} This amount, called the option delta, generally is provided by the ratio of the range of possible option values on the exercise date to the possible share price spread on that date. In Example 6 the option delta is ($12 - $0)/($45 - $21) = 1/2.
  \item \textsuperscript{126} It is important to keep in mind that these deemed transactions are just that—deemed. The actual transaction is an option purchase, and the question is how to model it with transactions that are economically equivalent.
  \item \textsuperscript{127} $15 - $10.50 = ($4.50).
\end{itemize}
in the worthless option case. If the stock went to $45 on Day 2, A would be deemed to purchase an additional one-half share of ABC stock on that day for its fair market value of $22.50 and to pay off the loan for $10.50. These transactions would leave A with one share of ABC stock worth $45 that was purchased for $37.50, for a capital gain of $7.50, and offsetting interest expense of $.96, for a net gain of $6.54. This amount equals the gain realized from the exercise of the option ($12) less the option’s cost ($5.46).

At least in the case of a covered call—where the option writer owns the underlying asset to be delivered if the option is exercised—it is appropriate to treat the option writer as the counterparty to the option purchaser’s constructive transactions. This treatment corresponds to the division of benefits and burdens effected in the option sale itself. In other words, the option purchaser’s acquisition of a portion of the underlying asset corresponds to the seller’s disposition of that portion. In Example 6, B may be viewed as selling A the one-half share of stock on Day 1 and lending A the $9.54 needed to finance the purchase of the remaining one-half share on the exercise date, leaving B with the $5.46 option premium. This deemed sale treatment corresponds to the reduced opportunity for gain that B enjoys as a result of writing the call. On Day 2 B would be deemed either to sell the remaining one-half share at its Day 2 fair market value, or to repurchase the one-half share deemed sold on the option purchase date at its Day 2 fair market value, depending on whether the option is exercised or lapses. This treatment essentially mirrors that of the purchaser.

Although intuitively appealing as a set of hypothesized transactions, there is a problem with using this set of constructive dispositions to understand the economic substance of a call option purchase. First, even in the case of a covered call, it is hard to see how the seller of a call option has sold a portion of the underlying asset to the option purchaser on the option sale date, because the mere execution of a call option contract does not transfer the benefits or burdens of ownership prior to exercise. Of course, I assumed these problems away in Example 6 by using an asset, stock, that is essentially costless to own, and by stipulating that the stock does not pay dividends. As a result, ownership of the property confers neither benefits (apart from the right to appreciation and voting rights) nor burdens (apart from the risk of loss). It is, however, questionable to assert that B has transferred any of the indicia of ownership prior to Day 2 (if then), since none of the features of a present property transfer seems to be present in the transaction. Where the underlying asset throws off income, is depreciable and/or has carrying or other costs associated with it, one
would be more hard pressed to see how the purchaser receives this income\textsuperscript{128} or bears the cost of producing it.

This problem becomes more acute in the case of a noncovered call, where the option writer does not possess the underlying asset at the time she sells the option:

Example 6B: The facts are the same as in Example 6, except that \( B \) does not own any \( ABC \) stock unless and until immediately before \( A \) decides to exercise the option.

In this example, \( B \) remains fully at risk with respect to the \( ABC \) stock that she must deliver should \( A \) exercise the option. If receipt of the option payment transferred ownership in any meaningful sense, \( B \) would no longer bear the risk associated with the option exercise—in this case, \$45. In the actual case where the underlying property could increase in value indefinitely, this risk would in principle have no upper bound.

The preceding observations suggest that the analogy of an option payment to the purchase of a portion of the underlying asset plus some amount of borrowing needs refinement. Since the option effects a transfer of the benefits and burdens of ownership that takes place, if at all, only on exercise of the option, it would be more appropriate to treat the option sale as a current borrowing and the disposition of a future interest in the underlying asset. Under the facts of Example 6B, on Day 1 \( A \) would be deemed to buy a future interest in a one-half share of \( ABC \) stock, with possession to take effect on Day 2, and to borrow an additional amount, as described above. In the more common fact pattern where ownership of the underlying property brings with it current costs and benefits, this approach preserves the underlying economics while permitting the analysis of the option transaction as the disposition of a portion of the underlying property. The principles of the previous Subsection would apply to this deemed forward sale. The nonexercise case then can be understood as the immediate transfer back, also on Day 2, of the portion of the underlying asset deemed purchased on expiration of the option.

\( A \)'s payment of \$5.46 on Day 1 can be conceptualized as a purchase plus borrowing. If the transaction is analyzed as the purchase of a future interest, \$15 must represent the present value of the future interest in the one-half share of \( ABC \) stock that \( A \) receives on Day 1. This conclusion follows from the fact that the deemed transfer of \$15 on Day 1, together with borrowing equal to the value of one-half of a

\textsuperscript{128} If, for example, the underlying property were income-generating real estate, the owner's execution of a purchase option on the property would not transfer the owner's rights to the income prior to option exercise.
share in the lapse case on Day 2, replicates the payoffs on the option contract. Stated in the converse, on Day 2, A must receive property the expected value of which on Day 1 was $15. Under the facts of the example, this expected value is $16.50, or $15 invested at the risk-free rate. Accordingly, A must be viewed as paying $15 for a future interest that increases in value over the option term, and as entering into the previously described loan transaction.

With this analysis in hand, one can apply the approach of this Sub-section to work through the tax treatment of the option. Since A is required to repay the $9.54 loan on the exercise date at all events, A should be treated as having interest expense, and B a corresponding interest inclusion, that accrue over the option term. Because this interest is fixed at the outset of the transaction, the OID rules should govern the expense and inclusion, subject to the usual deduction limitations.

The deemed stock transfers are nearly as straightforward. Assume that B's basis in the ABC stock on Day 1 is $30, its fair market value. B must allocate that basis between the sold and retained portions based on their relative fair market values. Since, by the terms of the example, the ABC stock pays no dividends, all of the value should be attributed to the sold portion (though that would not be the case under the more realistic scenario in which the underlying asset produces income and/or loss). For this reason, B also does not have an offsetting $1.50 of "loss" during the term of the option. Accordingly, under the ordinary allocation rule B would have no gain or loss on receipt of the option premium, notwithstanding her net $5.46 cash on hand following the option sale; the premium is actually what remains after constructively selling one-half of a share forward and lending A $9.54 immediately thereafter. On Day 2, B will either receive the one-half share sold to A in satisfaction of the loan or sell her remaining

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129 To say that the expected value is $16.50 is to say that on average the ex ante value of the one-half share of ABC stock on Day 2 must be $16.50, even though in any given case (under the facts assumed) it will be either $10.50 or $22.50. If the expected value were not $16.50, an investor would have an opportunity for riskless arbitrage. To see this, consider the cases where the expected value differs from $16.50. If it was greater, the investor could ensure a profit by borrowing at 10%, purchasing the stock at the current price, and selling it short at the Day 2 spot price. The proceeds of the short sale would exceed the interest due on the loan. If the expected value were less than $16.50, the investor could borrow the stock, sell it to a third party for $15, purchase the stock forward for its present value (which would be less than $15) and pocket the difference between $15 and that present value. On Day 2 she would close out the stock borrowing with the forward-purchased stock.

130 Arguably a source of value during the option term even in the nondividend paying case is the opportunity to use the stock as a hedge or a speculative investment, if the value fluctuated unpredictably during the term. For purposes of illustration I assume it to be zero. I also disregard the value of voting rights, a simplifying assumption that has no meaningful impact on the analysis in the case of large, publicly-traded corporations.
one-half share to A, depending on whether the option lapses or is exercised, respectively, in either case at the fair market value of the one-half share on Day 2. In the lapse case B takes a $10.50 basis in the one-half share received in satisfaction of the loan, leaving her with one full share that has a fair market value of $21 and an adjusted basis of $25.50. In the exercise case she sells the remaining one-half share to A for $22.50 and receives $10.50 in loan proceeds, netting a $7.50 gain, which she recognizes.

A’s treatment is largely complementary, except that she accrues the $1.50 of interest-like income over the option term, with appropriate upward adjustments of basis. In the nonexercise case A ends up with $6 of capital loss on the deemed transfer back of the one-half share to B for $10.50 in satisfaction of the loan ($16.50 adjusted basis less $10.50 value on disposition). In the exercise case, she purchases the remaining one-half share at $22.50 and repays the loan with cash at $10.50, taking a $39 basis in the stock ($16.50 basis in the already-acquired one-half-share plus $22.50 basis in the remaining one-half share). Note that in both cases, these tax rules accord to each of A and B one-half of the loss or gain in the full ABC share over the option term, adjusted to account for the fact that the purchaser has expected gain in the form of deemed appreciation. This result is consistent with the analysis that treats the writing of the option, on these facts, as a constructive future disposition of one-half of the underlying property.

The tax analysis for the option writer who has built-in gain or loss in the underlying asset is not in principle any different. For example, if B had a $5 basis in the ABC stock on Day 1, then under the approach advocated here B would be treated as realizing $12.50 of gain on that day ($15 deemed received for the one-half share sold forward on that day less the $2.50 basis allocable to it). Recognition of the gain on Day 1 reflects the analysis of a call option as the disposition on that day of a piece of the underlying property. Although the possibility of nonexercise, or “repurchase,” is intrinsic to the option transaction, the equivalence between the simple option of Example 6 and a purchase plus borrowing demonstrates that the option transaction is in effect a closing out of the option seller’s position with respect to a portion of the benefit (and risk) associated with owning the underlying asset. This closing out both is reflected in the fact that the repurchase, if any, is at the fair market value of the option on the lapse date, and what authorizes current taxation under a realization-based system of taxation, since the surrender of opportunity for gain and risk of loss pro-

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131 Presumably, she would do this using the constant yield-to-maturity method of the OID rules. See IRC §§ 1272-75.
vides the occasion for imposition of tax. Indeed, the receipt of the option premium indicates that the sale of the one-half share is in effect complete on Day 1; that premium reflects the locking-in of gain (or loss) with respect to a portion of the underlying property.

\[\text{ii. Extension to Actual Call Option}\]

The preceding discussion laid forth a proposed tax analysis for a simplified call option, in which it was stipulated that the underlying asset would have one of just two values on the strike date. In order to conclude that this analysis is fruitful for actual options, in which the underlying asset may take on any non-negative value on the strike date, the simplified option must be generalized to the real case.

As indicated above, Black and Scholes derived the formula for the price of an actual call option on non-dividend-paying stock. Their method was to treat the option as the limit of a series of simplified options of the kind described in Example 6. The intuition behind this approach is that one arrives at increasingly accurate approximations of a true option as one shortens the interval between option purchase and option exercise or lapse. For instance, one would more closely approximate a true option sold on Day 1 and exercisable on Day 2 by modeling the option as the outcome of two simplified options of the kind sold in Example 6. The first such option would expire halfway between Days 1 and 2, at which time the underlying asset would take on one of two values. The second would expire on Day 2, at which time the underlying asset would take on one of two values for each of its possible values on the expiration date of the first option. At the limit, one may consider an actual option as the result of an infinite series of such mini-options, each of which is open for an infinitesimal period of time and each of which permits an infinitesimal variation, positive or negative, of the underlying asset’s price at exercise or lapse from its price on the mini-option’s sale date. The result is a model of the real option as one of continuous property purchases, sales, and repurchases together with borrowings, repayments, and new borrowings.

The question becomes how to extend the tax rules described for the simple case to this model of continuous hedging.

\textit{Example 7: ABC stock is worth $30 on Day 1 and has moderate volatility of 30\%. On Day 1, when the risk-free rate of interest is 10\%, B sells A an option to buy ABC stock at $33

\[\text{132 See discussion in Section III.A.}\]
on Day 2, one year later. The price of the option is $3.64.\textsuperscript{133}
At all times from Day 1 to Day 2 B is the record owner of the ABC stock. ABC stock pays no dividends.

Under Black-Scholes, the option in Example 7 would be reformulated as the forward purchase on Day 1 of approximately 56.75\% of the underlying property, together with a borrowing of $13.39, subject to continuous adjustment.\textsuperscript{134} These figures are determined by the option delta, which is a measure of the sensitivity of a change in option price to a change in the price of the underlying asset. In Example 7 the option delta is .5675, which means that a perfect hedge for ownership of one share of ABC stock on Day 1 would require the sale of 1.77 options.\textsuperscript{135} That is:

$$S - 1.77Op = Z,$$

where $S$ is a share of ABC stock, $Op$ is the option, $Z$ is a zero coupon bond issued at $23.56 and earning interest at the riskless rate, and the minus sign indicates a sale. Solving the equation for $Op$ yields the extent of the share ownership and borrowing necessary to mimic the option on Day 1. Because the stock may take on any nonnegative value on Day 2, the preservation of this equivalence between the option and the borrowing and purchasing over time would require A to hedge continuously; that is, at each instant she would have to sell or buy differing amounts of the ABC stock and increase or pay down the principal on her loan accordingly. Because the exact amount necessary to effect these hypothetical additional purchases or sales and repayments or loans always would be provided by the value of the combined position at the immediately preceding instant, she would incur no additional cost as long as she hedged continuously.\textsuperscript{136} If, however, she did not hedge, her position would diverge from that of ownership of the option.

Thus, suppose that immediately prior to Day 2 the option is in the money. At that time the option delta is 1, because the option is certain to be exercised and the only way to hedge ownership of the stock

\textsuperscript{133} This is the value of the option under the Black-Scholes model. One can obtain such values easily with the aid of financial calculators, some of which are available on the Internet. See, e.g., http://www.blobek.com/black-scholes.html (providing a Black-Scholes option calculator for hypothetical options on hypothetical stock). Volatility is a measure of the expected fluctuation of the stock price and typically may be derived from historical data or other information, such as the nature of the company's business. See Haugen, note 118, at 439-40.

\textsuperscript{134} See Haugen, note 118, at 439-40.

\textsuperscript{135} That is, 1/.5675.

\textsuperscript{136} Any increase in value of the option would be reflected in additional borrowing that would be used to finance additional purchases of fractional amounts of the underlying asset; declines would require repayment of loans through deemed sales of fractional amounts of the underlying asset. See Haugen, note 118, at 436-40.
would be to sell one option, whose price on that day would be infinitesimally greater than the difference between the asset price and the strike price.\(^{137}\) If A had been continuously hedging, her position therefore would be full ownership of the underlying asset and borrowing in an equal amount. Conversely, if the stock were out of the money immediately before Day 2, the option delta would be zero and under continuous hedging A's ownership and borrowing would be zero. In either case, the tax rules must account for the deemed change in ownership and borrowing between Days 1 and 2 as well as for the exercise or lapse of the option on Day 2.

The question for tax purposes is how to apply the basic rules for the known option equivalents—debt and equity—to these deemed transactions. Consider first the exercise case. For any exercise, no matter how the ratios and timing of purchases and borrowing for the period break down, the total amount of A's payment must be the option cost ($33) together with the strike price ($3.64), or $36.64. In principle the exact breakdown could be quite difficult to calculate, because the stock price may fluctuate substantially over the course of the option term and the precise amount of deemed stock ownership and borrowing at any given time will fluctuate as well. Further, the price paid for incremental purchases and sales of portions of the underlying asset generally will vary with the stock price, so that A's basis will depend not just on the stock price on the strike date but also on the price path of the stock between the option sale date and the strike date. For instance, in Example 7 the ABC stock could undergo a number of increases and declines in value, possibly above the strike price and/or below $30, respectively, prior to Day 2. Under Black-Scholes, A would take these price changes into account through deemed purchases and sales of fractional shares of ABC stock at the spot prices, together with increases or reductions in her borrowing. As a result, there would be no unique basis or total interest due for any given initial option price and final asset price on the strike date. Basis and interest due also would depend on how the asset got to that price from its price on the option sale date. Finally, even if it were possible to account for all of these fluctuations, any effort to do so would be administratively unwieldy. Accordingly, it appears that mark-to-market tax accounting for options treated as a combination of borrowing and asset purchases under the Black-Scholes model would not be feasible.

\(^{137}\) That is, the owner of one share of ABC stock immediately prior to Day 2 who wanted to hedge that ownership with an in-the-money option whose strike price is $33 and exercise date is Day 2 would sell the option. This position is equivalent to ownership of a zero coupon bond with a principal amount of $33 that earns 10% and matures the instant after it is issued.
Similar problems arise in the nonexercise case. The net result of an option lapse is an expense to the option purchaser equal to the option price (plus forgone interest). As in the exercise case, the breakdown of this cost between loss on the underlying asset and interest expense depends on the price path of the underlying asset. Where, for example, the asset rapidly declined in value and remained low, the bulk of the cost would be capital loss. Where the asset appreciated and then dropped in value below the exercise price shortly before the exercise date, the holder would have high deemed interest expense as well.

Under realization-based taxation, however, it may make sense to adopt some simplifying assumptions about the option's value. The most natural of these might be to continue to apply the realization rule's presumption of constant asset value to the underlying property as long as the option is open. Under this approach the normal determinants of option price would continue to operate, but on the assumption that one of the determinants—the price of the subject property—remained constant. This approach, however, would tend to produce counterintuitive results. One reason is that the model of option ownership, unlike ownership of the underlying asset, intrinsically involves dynamic hedging, or deemed continuous selling and repurchasing of fractional amounts of the asset. If one assumes values of the asset at variance from its true value, then one must posit arm's length constructive sales and repurchases at prices that diverge from market prices, and it is unclear why parties would engage in such transactions. More fundamentally, this assumption departs from the basic circumstance that supports the realization rule, which is nondisposition of the asset. Presumed nondisposition does not seem appropriate where the equivalence between the option and stock ownership plus borrowing involves dynamic hedging of the asset, not holding it. In short, because dynamic hedging involves deemed continuous realizations of the underlying property, the realization rule does not support disregarding, for tax purposes, what happens to the asset while the option is open.

Nor do the standard administrative justifications for applying the realization rule to the underlying asset carry over easily to the option context. Assumption of a constant underlying asset value does not resolve any liquidity concerns, because deemed dispositions still would generate taxable gain and loss, as would deemed interest payments, without any cash actually changing hands. The assumption of constant asset value would make valuation easier, but valuation should not pose a particular problem in the option context, because options involving publicly-traded property are easily valued, while the
value of other options should be subject to reasonable approximation.  

To see the difficulties this approach entails, consider again *Example 7*. If one assumes that the *ABC* stock is worth exactly $30 per share while the option is held, the option delta will decline to zero between Day 1 and Day 2 as the option is deemed to fall farther and farther out of the money. The declining option delta means that *A* would be deemed to sell fractional shares of *ABC* stock and to reduce her borrowing. Except in the rare case where the *ABC* stock actually maintained its $30 per share value, the deemed resales would be off-market transactions in which *A* would be selling fractional shares back to *B* at prices different from their fair market values. These deemed sales would be especially troubling where the option actually became more valuable, because in that circumstance *A* should be deemed to be purchasing fractional shares from *B*.

Another approach would carry the realization rule over to the option itself and assume that the option retains its value during the option term, for as long as it is held by the original purchaser. This assumption is at least more consistent with economic reality, since the option price purports to reflect the actual value of the option in an efficient market. As a practical matter, however, the same difficulties noted under the constant asset price assumption would apply to this approach, because it too would assign values to the underlying asset that are inconsistent with the deemed treatment of the asset by the option holder whenever the presumed option price differed from its actual price. The result again would require deemed off-market transactions in most circumstances. Continuing with *Example 7*, under a constant option value assumption, the asset price would be deemed to move by the strike date to a point in excess of the exercise price equal to the option price. This assumption would require deemed purchases of additional *ABC* stock as the option delta moved towards one on Day 2, reflecting the assumption that the option

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138 See Kayle, note 109, at 276-77.
139 To be completely accurate it would be necessary to impute an increase in value of the option at the risk-free rate.
140 That is, as the exercise date approaches, an increasing percentage of the option's value is attributable to the extent to which it was in the money on the option purchase date, because any value attributable to the likelihood of wide variation in the underlying asset price prior to option exercise decreases. At the limit, where the option is sold immediately prior to exercise, all of the value is attributable to the extent to which the option is in the money. See Brealey & Myers, note 98, at 578 (noting that the value of a call certain to be exercised is equal to the stock price less the present value of the exercise price).
would be exercised. Suppose, however, that the asset price actually remained constant. The result would be deemed purchases of additional stock, but at an off-market price, and indeed at one that would support deemed sales of additional stock under the dynamic hedging model of option pricing, not deemed purchases.

The foregoing considerations suggest that something like a modified mark-to-market approach for option pricing would make the most sense. For reasons that will become apparent, I refer to this approach as "quasi-mark-to-market." Some form of mark-to-market taxation is necessary for options because only a rule that reflects economic reality at the close of the taxing period will assign asset values to constructive asset purchases and dispositions during the period that correspond to the prices at which these purchases and dispositions actually could have taken place given the option values at the beginning and end of the period, even on the assumption of a simplified path for the option price. In other words, an approach that takes periodic valuation into account is necessary because the Black-Scholes model of dynamic hedging treats an option as equivalent to a series of on-market transactions. Unless one is willing to posit off-market transactions, a simplifying assumption must be backward looking. Conversely, if one simplified using off-market transactions to approximate option transactions, one would substantially undercut the utility of using the dynamic hedging model in the first place, because the value of the model lies in its establishment of transactional equivalents. Finally, there does not seem to be any compelling policy reason not to adopt a quasi-mark-to-market approach for option transactions. The basic substantive rationale that I argue supports wait-and-see taxation for ordinary capital assets does not apply to options because, in fact, they represent continuous realizations. Valuation should not present any problems for most option transactions, and for those that involve nonpublicly traded property one ought to be able to apply simplifying assumptions about the asset's value at the close of the relevant taxing period that offer a reasonable approximation. Liquidity under a quasi-mark-to-market approach is of no more concern in the option context than in other similar contexts in which the Code applies mark-to-market taxation, including certain fu-

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141 This assumption would apply to all options and follows from the fact that all options have value. Since the only way an option maintains its value on the exercise date is for the option to be "in the money," the delta must be one.

142 See text accompanying notes 133-38.

143 The tax law already makes such assumptions in certain contexts. See, e.g., IRC § 1274 (using applicable federal interest rate to determine whether there is unstated interest on certain debt instruments issued in exchange for certain nonpublicly traded property).
tures and forward contracts, to say nothing of other contexts in which the tax law may require payment of tax without proceeds to fund the payment.¹⁴⁴

Note that an appropriate mark-to-market treatment of options could be simplifying; it could avoid the difficulty of actually computing the spot prices of the option on a daily basis (or in principle even more frequently). What is essential is merely that the simplifying assumptions fit with a set of hypothesized transactions that could have taken place during the taxable period, given the values of the option at the beginning and end of the period. This requirement ensures that the analysis does not presuppose net off-market transactions, a result that the previous approaches did not achieve. Such a quasi-mark-to-market approach offers the best prospect for accurate and workable tax rules for options. It would begin with the actual option prices at the beginning and end of the taxable period and then impute a simplified path to the option price during the period; the tax consequences under dynamic hedging then would be derived from the path. A number of distinct assumptions about the shape of the path could be applied. For example, the tax law could assume appreciation or decline in value of the option during the tax period on a constant yield-to-maturity basis, akin to the rules for debt with OID. As an alternative, a ratable method similar to the rules that apply to market discount bonds could apply. Probably the easiest assumption is simply that the increases or reductions in the amount of deemed asset purchase or sale and borrowing or repayment themselves occurred ratably over the relevant period.¹⁴⁵ This assumption would permit the easiest computation of net capital gain or loss and interest expense.

By way of illustration, consider again the case in which the price of the ABC stock in Example 7 increased to $35.08 on the last day of A’s taxable year, six months after Day 1. On that day, A’s option would be worth $5 and the option delta would be .7357, so that A would be deemed to have purchased forward an additional .1682 shares of ABC stock between Day 1 and the close of her taxable year. A would finance the forward stock purchase through additional borrowing secured by the increase in value of the stock already deemed owned by A by reason of the purchase of the option on Day 1. The amount of additional borrowing would be $6.77.¹⁴⁶ Under an assumption of rata-

¹⁴⁴ See, e.g., IRC § 1259 (constructive disposition rules for appreciated financial positions), Temp. Reg. § 15A.453-1(c) (contingent payment installment sales).

¹⁴⁵ Note that this assumption in general would not correspond to a linear increase or decrease in the price of the underlying asset during the taxable period.

¹⁴⁶ The deemed borrowing can be derived from the formula that equates the purchase of a zero coupon bond with the purchase of stock plus the sale of some number of call options:
ble increases in both the asset price and borrowing, A would be treated as having borrowed one-half of the additional $6.77 at 10% for six months, generating $.12 of interest expense above the expense incurred by reason of the deemed initial borrowing of $13.39.147

The treatment of the increase in the amount of stock that A would be deemed to purchase forward is analogous, but open to at least two interpretations for tax purposes. Because A in fact is no more out of pocket at the close of her taxable year than she was once she had purchased the option, the deemed additional borrowing and appreciation in the stock already deemed owned must finance all of the deemed forward purchase. The interpretive issue is whether to treat these forward purchases of fractional parts of the underlying asset as the result of constructive sales of the entire interest owned, followed by constructive repurchases of that interest plus an incremental amount, or simply as the result of constructive purchases of these incremental amounts. That is, in the example of a continuously increasing option delta, after initially buying a fraction of the stock, A could be viewed as immediately selling this fraction at an infinitesimally higher price, and then buying an infinitesimally larger fraction than she initially purchased with the proceeds of that sale. Alternatively, subsequent increases in deemed ownership could be viewed as the result of her purchase of just the incremental additional amount of stock, without a sale and repurchase of the amount initially purchased. Under the first interpretation she continuously would realize income from the sale or exchange of property; under the second she simply would add to her ownership and so would realize no gain.

Fundamentally, there is no "right" answer in terms of the theory of the Black-Scholes model, because economically the two sets of deemed transactions are the same, and Black-Scholes purports only to establish economic equivalents. Instead, the tax result depends on the answer to the policy question of whether it is appropriate to tax the gain on the value of the underlying asset during the pendency of the option or to wait until some future date, such as exercise or, more

\[ S - \frac{Op}{\Delta} = Z, \]
where \( S \) is share price, or $35.08, \( Op \) is option price, or $5, \( \Delta \) is the option delta, or .7357, and \( Z \) is the zero coupon bond that is replicated by this transaction. Rearranging:

\[ \Delta S - Op = \Delta Z, \]
where \( \Delta Z \) is the total amount of borrowing that, together with the deemed \( ABC \) stock purchase, replicates the option purchase under the Black-Scholes formula. See text at notes 119-21. Under the assumptions set forth in the text, \( Z \) is $20.81. The amount initially borrowed was $13.39; over six months $.65 would have accrued as interest, for a total of $14.04, so that an additional $6.77 would have been borrowed. Id.

147 Interest expense incurred by reason of the change in the option price would be approximated by assuming an average balance throughout the period of one-half the additional borrowing, or $3.385, at 10%.
realistically, ultimate disposition of the asset itself. In essence this question is similar to the question whether borrowing without recourse against untaxed appreciation should be taxed. In both the appreciating option and the nonrecourse borrowing cases the owner of property finances additional purchases by borrowing against built-in gain in the property, without any personal liability for the debt. In the abstract, such borrowing probably should be treated as a taxable realization, because it is economically indistinguishable from cashing out the gain.\textsuperscript{148} In practice, however, the answer has long been that such borrowing is not taxable.\textsuperscript{149} Extension of the operative rule to option transactions taxed under Black-Scholes therefore would maintain continuity in the tax law, but at the expense of economic inaccuracy. Conversely, if the built-in gain in options were taxed there would be greater accuracy, but this rule would create a discontinuity in the tax law that might encourage arbitrage or simply inefficient transactions that were alternatives to options but that enjoyed better tax treatments.\textsuperscript{150} In the absence of more general reform with respect to the taxation of cashed-out unrealized appreciation, these considerations suggest it is probably better not to tax this gain. On the other hand, an incremental reform that would substantially increase accuracy in the tax law would be to treat such cashing out, whether by sale of a put, the purchase of insurance, or any like transaction, as a realization event.\textsuperscript{151}

There is a further wrinkle on this question. If deemed borrowing against deemed appreciation in option transactions goes untaxed, then there will be an asymmetry between options with increasing option deltas and those with declining option deltas. Recall that the decline in the option delta represents deemed sales of the underlying property together with reductions in overall deemed borrowing. Under either interpretation of the deemed transactions under Black-Scholes, these sales generate loss from the sale or exchange of property. Because such asymmetries invite abuse, it would appear that the deemed purchases in the case of rising option deltas should be taxed.


\textsuperscript{149} See Woodsam v. Commissioner, 198 F.2d 357, 359 (2d Cir. 1952).

\textsuperscript{150} As an example, the taxpayer could purchase insurance against the decline in value of property as an alternative to purchasing a put option on it. See Shaviro, Risk-Based Rules, note 1, at 648-50.

\textsuperscript{151} As discussed in greater detail below, the Code already provides for such treatment in certain cases in which the taxpayer also disposes of the opportunity for gain or otherwise exchanges risk-based for fixed returns. See IRC §§ 1258-1260. It is not clear why the rule could not be expanded to deal with cases in which the taxpayer eliminates solely the risk of loss. See generally, Schenk, note 21 (proposing such a rule).
If incremental gains in the underlying asset are taxed under this approach, then under the quasi-mark-to-market approach, it is necessary to distinguish the amount of gain in the fractional share deemed owned throughout the period from the gain in the fractional shares purchased during the period. Returning to Example 7, with respect to the first, A’s gain is simply the difference between .5675 shares of ABC stock at $35.08 and at $30, or $2.88. The second is $.43 and is given by the difference between the closing price of the ABC stock and its average price during the period, or $32.54, assuming a constant change in the quantity of stock owned and in its price. Assuming quasi-mark-to-market did apply, A would treat the extent of additional borrowing as realized short-term capital gain (unless she were a dealer or the ABC stock were otherwise not a capital asset in her hands\textsuperscript{152}).

The only remaining piece of the option transaction that generates tax consequences is the portion of any gain or loss resulting from the fact that the deemed purchase is a purchase forward, that is, a temporal carve-out transaction. The tax rules must account for the gain and loss that arises as a result of this aspect of the option, just as in the simple forward contract described in Section III.A. Again, a simplifying assumption very like the one that applies to the interest and capital portions of the option could approximate this value. In Example 7, the .5675 shares A purchased forward would be deemed held for the entire option period, while a fraction of the balance representing the average amount held for the period also would be deemed owned.

b. Put Option

It is easy to show that put options should enjoy treatment analogous to that for call options. Like the sale of a call, one may analyze the sale of a put as the disposition of a part of the underlying property together with a loan transaction. In the put option context, however, the purchaser of the option, rather than the seller, sells a portion of the underlying property and acts as a lender. That is:

\[
\text{Put purchase} = \text{Partial Sale} + \text{Lending}. 
\]

This result follows from the equivalence established by the put-call parity theorem.\textsuperscript{153} This theorem states that for any option exercise price the combination of the purchase of a call option and the investment of cash at the risk-free rate in an amount sufficient to yield the strike price of the option on the strike date is equivalent to the

\textsuperscript{152} See IRC \S 1221(a).

\textsuperscript{153} Warren, note 1 at 465-67. The equivalence assumes the underlying property generates no income during the pendency of the options.
purchase of a put option with the same strike price and strike date together with ownership of the underlying asset. That is:

\[ \text{Call} + \text{ZCB} = \text{Asset} + \text{Put}, \]

where ZCB is a zero coupon bond paying the strike price of the options on their strike date. If on the strike date the asset has appreciated above the strike price, the owner of the instruments on the right-hand side of the equation will be left with the asset and a valueless put, and the owner of the instruments on the left side will have a bond, the proceeds of which exactly equal the strike price of the call option, which she will exercise. If the asset declines below the expected value, the owner of the instruments on the right-hand side will exercise the put and be left with cash equal to the face amount of the ZCB; the call will be worthless.

One can rearrange the terms of the algebraic equivalence to arrive at expressions for its individual elements. In particular:

\[ \text{Put} = \text{Call} - \text{Asset} + \text{ZCB}, \]

where the minus sign indicates a sale. This equation states that the purchase of a put option is equivalent to the purchase of a call with the same strike price and strike date, the sale of the asset, and the purchase of a zero coupon bond whose payment at maturity is the strike price of the put and call. A call option is economically equivalent to the forward purchase of some portion of the underlying asset coupled with borrowing. Making this substitution, one arrives at the following equivalence for put options:

\[ \text{Put} = (\text{Partial Asset Purchase} + \text{Partial Borrowing}) - \text{Asset} + \text{ZCB}. \]

Since both the implied asset purchase of the call and the implied borrowing are always less than the full value of the underlying property, one can simplify the above as follows:

\[ \text{Put} = \text{Partial Asset Sale} + \text{Partial Lending}. \]

The equivalence established by the put-call parity theorem demonstrates that the same basic analysis operative in the call option context applies to put options. The option writer is deemed to buy a future interest in the property on the option sale date and to borrow in order to finance the purchase of an equivalent amount on the exercise date. If the option is not exercised, the option writer is deemed to repay the debt with the property purchased; if it is exercised, the option writer

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155 This reflects the fact that the upper limit of the cost of a call option is the current cost of the asset subject to the option. See generally Brealey & Myers, note 98, ch. 20. An option with this price is simply a forward purchase of the underlying asset. See text accompanying notes 134-36.
repays the debt and purchases the balance of the underlying asset at its fair market value on the strike date:

Example 8: ABC stock, worth $30 on Day 1, will be worth either $21 or $45 on Day 2, one year after Day 1. On Day 1 A sells B an option to sell A one share of ABC stock at $29, exercisable only on Day 2. On Day 1, the risk-free interest rate is 10%. At all times from Day 1 to Day 2 B is the record owner of the ABC stock. ABC stock pays no dividends.

The option described in Example 8 is the put version of that described in Example 6A. As indicated in that example, if Example 8 described a call option giving A the right to purchase the stock on Day 2 at $29, A would pay $7.27 for the call. This payment would represent the constructive purchase on Day 1 of two-thirds of a share of ABC stock forward and borrowing, also on Day 1, of two-thirds of the present value of $21 on Day 2. If the option lapsed, A would constructively repay the loan with the forward-purchased two-thirds of a share, and if the option were exercised, A would repay the loan and purchase an additional one-third of a share at the present value of $15.

One can use the equivalences established by the put-call parity theorem to determine the extent of the sale and borrowing that this option implies, recognizing that subtraction of an asset is equivalent to selling it and that the purchase of a zero coupon bond is equivalent to lending the principal amount of the bond with full interest and principal payable at maturity:

\[
\text{Put} = \left(\frac{2}{3} \text{ Forward Purchase} + \frac{2}{3} \text{ Low-value Share Borrowing}\right) + \text{Asset Sale} + \text{ZCB}
\]

or:

\[
\text{Put} = \frac{1}{3} \text{ Forward Sale} + \text{Lending of (PV of strike price} - \frac{2}{3} \text{ Low-value Share Borrowing).}
\]

The above equivalence states that when restructured as a put option, the transaction becomes equivalent to A's forward purchase of one-third of the ABC stock for $10 and borrowing the difference between the present value of the $29 strike price ($26.37) and the present value of two-thirds of $21 ($12.73), or $13.64. This yields a price for the put option of $3.64 ($13.64 - $10). It is a straightforward matter to carry through tax treatment for the put option that is analogous to that suggested for the call option.

3. Conclusion on Options

The availability of the dynamic hedging model for options suggests that their tax treatment can be made consistent with the tax law's ba-
sic distinction between wait-and-see taxation for unrealized capital gains and accrual or other forms of current taxation (such as expected value) for other kinds of returns. Even a simplified dynamic hedging model offers this advantage; its significance derives from its elimination of substantial arbitrage opportunities available under current law, especially given the ubiquity of option or option equivalents in financial products. Under the dynamic hedging model, discontinuities with forward contracts (which, as discussed below, are often similar to option contracts) are essentially eliminated, as are opportunities to exploit the hidden interest element in options as contrasted with debt instruments.

IV. Applications

Sections II and III offered, respectively, a defense of a circumscribed sphere of application for the realization rule and an account of how the rule applies to carved-out property interests. Perhaps the most important conclusion of the preceding discussion is that the realization rule is not inconsistent with current accrual of income and expense for either temporal divisions of property or risk-based divisions—the former because associated income and loss are not due to the assumption of "investment risk," and the latter because associated income and loss arise from deemed dispositions of assets, not from simply holding them. If the realization rule is consistent with expected value taxation on temporal carve-out transactions and mark-to-market or quasi-mark-to-market taxation of option transactions, then some form of accrual taxation can apply to many modern financial instruments in a manner consistent with realization taxation for traditional capital assets, such as stock and debt.

Further, since there is little justification for extending realization-based taxation to risky returns from non-investment-based risks, there is no deep policy reason, apart from administrative difficulties or worries about arbitrage opportunities, for retaining the realization doctrine for those financial products that do not represent the assumption of investment risk. Neither Congress nor Treasury would do violence to the original scope of realization taxation by removing these products from realization accounting, in whole or part, if administrative considerations supported such a switch; such a move also would do little violence to the tax treatment of holders of traditional instruments, such as basic stock and debt. Assuming valuation and liquidity do not figure into the analysis, there is no inconsistency in applying expected value, mark-to-market, or other tax regimes to these instruments. By the same token, however, there may be continuity- and consistency-based reasons for subjecting contingent returns from cer-
tain financial instruments to realization taxation or for treating them as capital assets, even if they do not involve the assumption of investment risk.

This Section illustrates how one might construct rules that embody these principles for forward contracts and CDIs. These instruments represent two of the more important types of derivative financial instruments that are apt to involve the assumption of investment risk.

### A. Forward Contracts

A forward contract, or forward, is a privately negotiated sales contract that entitles the purchaser to delivery of an asset at some time in the future.\(^{156}\) If the purchaser pays for the asset prior to delivery the forward contract is a prepaid forward (PPF). If the parties net out their positions in the contract through a cash payment in lieu of the seller's delivery of the underlying asset, the contract is cash-settled.\(^ {157}\) Forwards are important in the present context because of their frequent use as risk-management instruments or to speculate on price movements\(^ {158}\) and because they can form parts of other financial contracts, such as NPCs or CDIs.

**Example 9:** On Day 1, B agrees to pay $100 to A on Day 2, two years hence, in exchange for the receipt, also on Day 2, of 100 shares of ABC stock from A. A holds the ABC stock as a capital asset with an adjusted basis on Day 1 of $75.

**Example 9** describes a simple forward contract. If, instead of paying $100 on Day 2, B pays for the stock on Day 1, the contract is a PPF.\(^ {159}\) The contract is cash-settled if, instead of delivering the stock to B on Day 2 in exchange for $100 (or for some lesser amount beforehand), A agrees with B that the party whose position is out of the money will pay the counterparty the difference between the contract price and the price of that position. For example, if on Day 2 100 shares of ABC stock are worth $50, B could cash-settle the contract by paying A $50. If the shares are worth $125, A could cash-settle by paying B $25. A forward contract may, of course, be both a PPF and cash-settled.

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\(^{156}\) See Shuldiner, General Approach, note 6, at 304.

\(^{157}\) A futures contract, another common financial product, is a species of forward contract to which the analysis offered here would apply. A futures contract is a cash-settled forward contract negotiated on an exchange rather than privately. Currently regulated futures contracts are subject to the mark-to-market rules of § 1256. IRC § 1256(b)(1), (g); see Levy, Equal Tax Treatment, note 80, at 478 (describing futures contracts).

\(^{158}\) See Levy, Equal Tax Treatment, note 80, at 478-79.

\(^{159}\) In that circumstance B would pay less for the stock than $100, reflecting the time value of money. See Levy, Equal Tax Treatment, note 80, at 481-82.
Sections 1001, 1223, and 1234A generally govern the taxation of forward contracts, with exceptional treatment for certain positions described in §§ 1092, 1256, 1258, 1259, or 1260. In the case of a forward contract for property not subject to exceptional treatment, the execution of the contract generally has no immediate tax consequences.\(^{160}\) If the underlying property is delivered pursuant to the contract, the buyer takes a basis equal to the purchase price\(^{161}\) and the seller recognizes gain or loss equal to the difference between the sale price and the seller's adjusted basis.\(^{162}\) Character depends on the nature of the underlying property in the seller's hands, and the holding period is determined by reference to the date the property is transferred, not the date the contract is entered into.\(^{163}\) These results are no different from the sale of property under an ordinary contract in which execution and delivery are contemporaneous.

If the contract is cash-settled, the above rules generally apply, except that the parties treat any gain or loss realized as capital gain or loss so long as the property is or would be a capital asset in the hands of the taxpayer.\(^{164}\) The same rule applies to a party that disposes of its rights or obligation under the contract to a third party prior to the delivery date or who cancels or terminates her obligations under the contract.\(^{165}\)

The rules described above do not apply to forward contracts that qualify as legs of a straddle under § 1092,\(^ {166}\) as certain "section 1256

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\(^{160}\) This result apparently does not change when the contract is a PPF. See, e.g., N.Y. St. Bar Ass'n Tax Sec., Timing and Character Rules for Prepaid Forwards and Options, 91 Tax Notes 816 n.3 (Apr. 30, 2001) [hereinafter NYSBA Report] ("Although there is no clear authority for the treatment of prepaid forwards under current law, it is generally believed that sellers who receive a prepayment on a prepaid forward do not have income as long as the prepaid forward is not viewed as a sale or a constructive sale.").

\(^{161}\) IRC § 1011.

\(^{162}\) IRC § 1001.

\(^{163}\) See IRC § 1223 (setting forth no exception to the general rule for ordinary forward contracts).

\(^{164}\) IRC § 1234A.

\(^{165}\) IRC § 1234A(1).

\(^{166}\) Straddles are arrangements in which the taxpayer enters into offsetting or nearly offsetting financial positions in order to take advantage of what is sometimes called the timing option. In a typical straddle the taxpayer might in Year 1 simultaneously sell a gold future at $100 and purchase a gold future at the same price, each to be settled in Year 2. Economically the positions are exactly offsetting and therefore the positions together have no economic value. Prior to the end of Year 1 the positions are likely to have shifted in value, however, and absent the special rules of § 1092 the taxpayer could sell the loss position while retaining the gain position, thereby recognizing a tax, but not an economic, loss. In addition, the taxpayer could preserve the deferral by entering into another offsetting future contract with slightly different terms that matured the following year, thereby replicating the loss. Section 1092 generally defers this loss to the extent of unrealized appreciated gain in the other leg of the straddle.
contracts," or as constructive sales of "appreciated financial positions" under § 1259; they also do not apply to arrangements described in §§ 1258 or 1260, which target certain transactions designed to convert ordinary income into capital gain.

For a number of reasons, the taxation of forward contracts has long been a subject of concern, and the increased use of such contracts in recent years has lent added urgency to this concern. First, entry into an ordinary forward contract where the seller actually owns the underlying property is akin to a realization event, notwithstanding the seller's continued ownership of the property until the settlement date. As in a standard sale, the seller has transferred some of the burdens and benefits of ownership to the buyer in exchange for the right to a fixed amount on the settlement date. Despite the underlying economic substance of the transaction, prior to the enactment of the provisions mentioned above that set out special treatment for certain forwards, no tax consequences attached to mere entry into a forward contract; instead the realization rule applied. This treatment continues to obtain for forward contracts that do not fall within the ambit of these sections. As a result, many forward contracts enable sellers to

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167 Section 1256 contracts include regulated futures contracts, foreign currency contracts, nonequity options, and certain other contracts. See IRC § 1256(b). If § 1256 applies, the contract generally is taxed annually on a mark-to-market basis, with gain or loss allocated 40% to short-term and 60% to long-term capital gain and appropriate adjustments made to basis to reflect the annual gains or losses recognized. IRC § 1256(a)(3).

168 Section 1259 provides for current recognition of gain to a seller in the case of the constructive sale of certain appreciated financial positions. For this purpose a constructive sale is a transaction in which the taxpayer retains legal or other indicia of title but eliminates both the opportunity for gain and the risk of loss with respect to qualifying property. IRC § 1259(c)(1). "Appreciated financial positions" include, with certain exceptions, positions with respect to stock, debt, or a partnership interest, that if sold or otherwise disposed of on the constructive sale transaction date would generate gain to the seller. IRC § 1259(b)(7). They do not include positions subject to § 1256. IRC § 1259(b)(2)(c). Constructive sales include certain forward contracts. IRC § 1259(c)(1)(c).

169 Sections 1258 and 1260 recharacterize gains from certain transactions in which the seller of a financial instrument realizes what is in form long-term capital gain but is in substance income from the time value of money. Section 1258 applies to transactions in which gain or loss on a future sale is locked in at the time the asset is purchased or where the transaction is marketed as a capital-gain producing transaction; § 1260 applies to similar transactions in which the taxpayer purchases an interest in a pass-through entity in order to obtain capital treatment on income earned by the pass-through that, if it were earned by the taxpayer directly, would be ordinary. Under regulations yet to be issued, ownership of certain debt instruments or non-pass-through entities such as a corporation may be covered as well. See IRC § 1260(c)(1)(B).

170 See, e.g., Levy, Equal Tax Treatment, note 80, at 475 (noting that current debate centers on, among other instruments, PPFs).

171 These provisions do not reach many forwards. Section 1092 only applies to forwards if they are parts of straddles, IRC § 1092(c); most forwards are not parts of a straddle. A forward falls within the mark-to-market regime of § 1256 only if it is a regulated futures or dealer securities futures contract. See IRC § 1256(b) flush language. The other provisions setting out special treatment are also narrow. The forward may fall outside of § 1258 be-
defer gain, to transform interest income into capital gain, and to extend their holding periods in the underlying property. In the example above, the $100 contract price typically reflects a premium on the fair market value of ABC stock on Day 1 equal to an interest-like return on that value over the term of the contract. This interest is not taken into account, however, until Day 2 when received in exchange for the ABC stock, and it is treated as part of the amount realized and taxed at capital rates.

Second, some commentators argue that ordinary forward contracts contain a loan element that goes unaccounted for in their tax treatment. In Example 9, on Day 1 the purchaser, B, has received a valuable right for which she need not make payment until Day 2. On one view, A in effect has extended B credit equal to the purchase price of the underlying property. Since, on this account, the forward price should reflect an expected interest component arising from the fact that payment need not be made until Day 2, the amount of the implicit loan should be such that, when interest accrues at the prevailing rate, the amount due at maturity is equal to the purchase price.

Finally, PPFs create tax issues not present in the ordinary forward contract case because of the implicit loan running in the other direction—from buyer to seller. If the contract price reflects the present value of the purchased commodity on the transfer date, then under a PPF the buyer in effect lends that amount to the seller, who pays interest to the buyer while the contract is executory. On the exchange date the seller constructively repays the principal and the buyer constructively pays both the interest and the principal to the seller in exchange for the property.

cause, for example, the purchaser’s acquisition of the underlying property is not contemporaneous with the purchaser’s entry into the forward to sell it or the forward does not otherwise constitute an enumerated “conversion transaction.” IRC § 1258(c). The forward may fall outside of § 1259 because, for example, the property is not “appreciated,” IRC § 1259(b), is not a “financial position,” IRC § 1259(c), or the transaction eliminates less than substantially all of the taxpayer’s opportunity for gain and risk of loss, see H.R. Conf. Rep. No. 105-220, at 512-13, reprinted in 1997-4 C.B. (vol. 2) 1457, 1982-83 (describing a constructive sale as requiring the disposition of at least this quantum of benefits and burdens). The forward may fall outside of § 1260 because, for example, it is not a transaction in an interest in a pass-through entity. IRC § 1260(c)(1).

Deborah Schenk has proposed rules similar to those that apply to appreciated financial positions under § 1259, except that a constructive sale would be defined more broadly to include transactions in which the taxpayer eliminates risk of loss. Schenk, note 21, at 582-86. A common means for a seller to eliminate the risk of loss is through purchase of a put option. Nonrecourse financing is economically the equivalent of a put option. Id. at 623-24.

See, e.g., Levy, Equal Tax Treatment, note 80, at 481-82. As argued below, the implicit loan analysis fails to take account of the fact of the offsetting right of the counterparty to retain the property sold until the delivery date.

See, e.g., id., at 502-06.
The analyses of the realization rule and carve-outs in Sections II and III suggest that the concerns about forwards are somewhat overstated. In fact, the problems that forward contracts create are two-fold. First, they may convert what is economically an interest-like return into deferred capital gain. Second, in the case of a PPF they may disregard interest entirely. Concerns about untaxed interest in ordinary forward contracts, however, seem misplaced.

Economically a forward contract is akin to the sale of a future interest. The seller effectively carves out the portion of the value of the underlying property attributable to all periods commencing on the transfer date, retaining the balance. The retained portion is a wasting asset, while the sold portion appreciates correspondingly. Applying the carved-out interest analysis developed in Section III.A, the parties would take account of the appreciation and depreciation to the extent these amounts effectively are locked in, while the seller would treat amounts received during the carve-out period as ordinary income.

Thus, consider again Example 9, in which A sells $100 of ABC stock to B, with the $100 to be paid and the stock to be delivered two years following the contract date. Assume that the stock is not expected to change in value while the contract is executory, but that dividends on average will yield returns comparable to those of other similar stocks, or $10 annually. The analysis is exactly the same as that of the sale of a future interest in Blackacre described in Example 4, except that in Example 9 payment for the future interest occurs on the day the stock changes hands, not on the carve-out date. The sole question is what effect, if any, this difference has on the transaction.

The basic results in Example 4 were that on the carve-out date the seller of the property recognized built-in gain or loss on the portion sold and treated the retained property rights as a wasting asset that generated ordinary income or loss during the carve-out term. The purchaser simply accrued income on the future interest to reflect the appreciation of that interest as the vesting date neared. Here the seller receives a promise of cash rather than cash on the carve-out date. As a result, the seller's net position on Day 1 is as follows: She receives a right to $100 in two years, worth $82.64 on Day 1, and recognizes gain on the portion deemed sold. The right to payment on Day 2 appreciates by $17.36 during the term of the carve-out. She also has a wasting asset the fair market value of which is $17.36. If her basis in this right equaled its fair market value, the deemed appreciation of the right to payment and the deemed depreciation in the present interest would net to zero, and she would recognize $10 of income annually during the carve-out period on dividends paid. In other words, where the seller's basis equals the property's fair market
value, one can safely disregard the effect of the passage of time on her rights and obligations with respect to the retained interest.

Where, however, the seller's basis differs from the property's fair market value, execution of the forward contract does have an effect on the seller's income from the retained interest.\(^\text{174}\) In that case the amount of her deduction from the wasting present interest differs from the amount of appreciation in the right to the cash payment on Day 2. In Example 9 the seller would offset her $13.02 basis in the wasting interest against the $17.36 appreciation, producing an additional $4.34 of ordinary income during the term of the carve-out, based on the same constant yield-to-maturity principles that generally apply to income and loss that accrue by reason of the passage of time. Treatment of this $4.34 as ordinary rests on the same principles that apply to the built-in gain on the remainder sale examined in Example 4.

One might argue that the seller under a forward contract incurs an additional liability to deliver the underlying property that offsets her income from the retained present interest. In the example this liability has a value of $82.64 on Day 1 and increases to $100 on Day 2. One can safely ignore this liability, however, as long as the seller retains the underlying property during the carve-out period. The reason is that the liability only arises if one views the future interest as not actually disposed of on the sale date but only on the transfer date. But on this assumption the seller continues to own property during the carve-out that precisely offsets the liability. This property—the future interest in the stock—is worth $82.64 on Day 1 and appreciates on the same schedule that the liability to deliver the property increases.

The treatment of the purchaser in the ordinary forward also differs somewhat from the treatment of the purchaser in Example 4, where payment occurred on the carve-out date. On Day 1 the position of the purchaser under the ordinary forward contract consists of a right to property worth $100 on Day 2, together with an offsetting obligation to deliver $100 on Day 2. The obligation under the forward contract to deliver $100 on Day 2 must be taken into account because it is not possible to earmark the property that will be used to satisfy the liability—if it were, then the contract in effect would be prepaid. One could restate the point by observing that there can be no carve-out of cash in a non-PPF because cash is fungible. For this reason, the purchaser, unlike the seller, will not accrue income during the carve-out

\(^{174}\) The seller, however, should recognize income or loss on the portion deemed sold on the carve-out date regardless of whether she is paid on that date or when the property physically changes hands.
by reason of the carve-out itself, because her obligation to deliver cash offsets her right to receive property. Instead, she neither includes nor deducts income between Days 1 and 2. As a practical matter, however, the purchaser will have offsetting income arising from the retention of cash that will earn interest and be used to satisfy the obligation.

A PPF, of course, is no different from the sale of the future interest described in Example 4:

Example 9A: On Day 1, when the fair market value of 100 shares of ABC stock on Day 1 is $100, B pays $82.64 to A in exchange for the right to receive on Day 2, two years hence, 100 shares of ABC stock from A. A's adjusted basis in the ABC stock on Day 1 is $75.

The only difference between Example 9 and Example 9A is that in the PPF B makes the payment up front, just as in the case of a current sale of a future interest. On these facts, it is appropriate to assign income to B between Days 1 and 2 based on the appreciation of her right to the 100 shares of stock, just as in Example 4, because she has no offsetting obligation to deliver cash in the future. This income is in a sense offset, however, by the fact that B pays only the discounted value of the 100 shares, or $82.64, on Day 1, rather than the $100 on Day 2. B thus has $17.36 of income that accrues on a constant yield-to-maturity basis between Days 1 and 2.

Additional questions arise in two areas. The first is where the contract is or may be cash-settled. As the preceding discussion demonstrates, application of the carve-out rules depends on the seller's ownership and subsequent transfer of the underlying property; these features of the transaction justify its treatment as a sale of property on the date the parties enter into the contract. Where the contract is cash-settled, the analysis is less clear. There are two basic cases. In the first the seller at no point owns the underlying property. In that case the underlying property serves merely as a measure of the obligations of the parties to the contract, and the only possible bases for preserving realization-based treatment through application of carve-out principles are to preserve continuity and consistency, or because valuation and liquidity problems make another regime inappropriate.

In the second case the seller owns the property during some or all of the carve-out period. The question is whether this ownership should matter when the property will not be transferred under the contract. As explained in greater detail in the next Subsection, the better ap-

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175 See Kleinbard, Risky and Riskless, note 52, at 794-95.
The approach is to apply a modified version of the carve-out rules when and to the extent the transaction is "covered"—when, that is, the nominal seller (here A) owns some or all of the subject property. The reason is that entry into the forward contract permits the holder of the property to cash out gain or loss.

**Example 9B:** A and B enter into the same contract as in Example 9, except that they agree to substitute a cash payment on Day 2 for transfer of the ABC stock. If the stock is worth less than $100 on Day 2, B will pay A the difference between $100 and the stock's fair market value, and if the stock is worth more than $100, A will pay B the difference between the stock's fair market value and $100. At all times between Days 1 and 2, A owns the ABC stock, and her basis is $75.

In Example 9B, A cashes out her gain or loss on 82.64% of the ABC stock by entering into the contract. No matter what the price path of the stock after Day 1, she has realized her built-in gain with respect to this portion. Because she has locked in this gain, it is appropriate to treat it as realized on the transaction date, even though she does not dispose of the underlying property. At the same time, because her obligations under the contract are personal, it is also appropriate to treat her as continuing to own the stock for tax purposes. In effect, the transaction is a constructive sale and repurchase of the 82.64% deemed sold,176 or a wash sale.177 Where the effect of the sale is to manufacture a loss, the loss could be deferred under the same principles that apply to ordinary wash sales.178 Assuming gain is recognized, A would simply increase her basis by the amount of the inclusion. A's ownership of the stock should not affect treatment of the purchaser.

The other area in which questions arise is where the contract provides for physical settlement but the seller is not in possession of the underlying property for some period of time between Day 1 and Day 2. When the seller does not own the property on the transaction date, her obligations under the contract should be treated as though the contract were cash-settled until she acquires the property (or rights to it). When the property is acquired, gain or loss should be recognized based on the difference between the price paid for the por-

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176 Deemed transactions of this sort are not uncommon in the Code. See, e.g., IRC § 338(a) (deemed sale and repurchase of stock in certain "qualified stock purchases").
177 Wash sales are sales closely preceded or followed by purchases of the same or identical property. See IRC § 1091 (deferring loss on wash sales of stock and securities).
178 See id.
tion deemed sold on the transaction date and the amount the seller pays for it. If, for example, the seller pays $125 for the underlying property, she should recognize a loss on the carve-out of $20.66. In addition, the excess basis allocable to the retained interest should be available either as a carryback or as a loss to current income.¹⁷⁹

B. Contingent-Payment Debt Instruments

The second financial product examined here is a CDI, which typically provides for some combination of fixed and contingent payments, the latter often keyed to the performance of a reference index, such as the S&P 500. In some instances all of the payments on the instrument are in principle contingent.

Example 10:¹⁸⁰ On December 31 of Year 1, X Co. issues for $1 million a debt instrument that matures on December 31 of Year 11. The instrument provides for annual payments of interest, beginning in Year 2, at the rate of 6% and for a payment at maturity equal to $1 million plus the excess, if any, of the price of 10,000 shares of publicly traded stock in an unrelated corporation over $350,000, or less the excess, if any, of $350,000 over the price of 10,000 shares of the stock on the maturity date. On the issue date, the forward price to purchase 10,000 shares of the stock on December 31 of Year 11 is $350,000.

Under current rules, this and similar CDIs are taxed under the non-contingent bond method.¹⁸¹ This method requires the issuer to construct a comparable noncontingent debt instrument on which payments are deemed to accrue irrespective of whether payment amounts are fixed or determinable at the time of issuance of the CDI.¹⁸² To the extent that actual payments on the CDI differ from projected payments, the parties adjust their previously taken interest inclusions and deductions; these adjustments likewise are treated as interest income and interest expense. For example, the regulations provide that the issuer of the debt instrument in Example 10 computes the comparable yield of the noncontingent payment debt instrument

¹⁷⁹ In the example, the amount paid for the retained interest would be 125% of $17.36, or $21.69. The $4.33 excess should be available as an ordinary loss either carried back to the carve-out years or applied against current (or future) ordinary income.
¹⁸⁰ This example is based on Reg. § 1.1275-4(b)(4)(vi)(Ex. 1).
¹⁸¹ Reg. § 1.1275-4(b).
¹⁸² The comparable yield is generally “the yield at which the issuer would issue a fixed rate debt instrument with terms and conditions similar to those of the contingent payment debt instrument.” Reg. § 1.1275-4(b)(4)(i)(A).
by determining the cost of a hedge on the actual CDI. The hedge in this case is the forward purchase of 10,000 shares of the stock on the maturity date. Since this cost is $350,000, the cost of the comparable instrument is $1 million ($650,000 fixed amount due plus cost of hedge), and the instrument has a yield of 6%. Since the instrument actually pays 6% annually, the parties do not include any deemed interest as OID. (If the forward price of the stock differed from $350,000, the comparable yield would be higher or lower because the issuer would pay more or less to construct a comparable noncontingent bond, in which case there could be annual OID or bond premium.) Where, unlike the instrument in Example 10, the contingency is not based on market information, the yield generally is presumed to be the applicable federal rate.\(^{183}\)

The current treatment of CDIs is the product of a long and somewhat tortuous evolution. Under rules proposed in 1986, no part of the issue price of a CDI was allocated to its contingent portion.\(^{184}\) Thus, a debt instrument issued at par that provided for an additional contingent payment at maturity was treated as a fixed-rate debt instrument with no OID, together with a contingent payment valued at zero, even if no stated interest were payable during the term of the instrument. Because such an instrument economically has OID, the effect was deferral of tax on the holder and concomitant deferral of the interest deduction to the issuer.\(^{185}\)

In response to this problem, Treasury issued proposed regulations in 1991 that adopted a bifurcation approach to CDIs.\(^{186}\) Where the CDI contained a fixed portion and a contingent portion the value of which was based on that of certain publicly-traded property (and the fixed payment at maturity at least equaled the issue price), the issuer was required to allocate the issue price between the fixed and contingent portions based on their relative fair market values. The fixed piece was taxed as debt with an OID component, and the contingent piece was taxed according to its economic substance, typically as some combination of options and forward contracts.

Although this regime represented a significant improvement over prior law, it came under heavy criticism.\(^{187}\) First, the tax treatment of

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\(^{183}\) Reg. § 1275-4(b)(4)(i)(B). In certain circumstances the issuer may be able to overcome this presumption and apply a higher yield. See id.

\(^{184}\) Prop. Reg. § 1.1275-4(e), (f), 51 Fed. Reg. 12,022, 12,087-12,090 (Apr. 8, 1986).

\(^{185}\) See Reed H. Shuldiner, Consistency and the Taxation of Financial Products, 70 Taxes 781, 787-88 (1992) [hereinafter Consistency].


the components into which the instrument was disaggregated was itself often uncertain. As an example, a payment based on the spread between a floating rate and a fixed rate times a notional amount might be marked to market under Section 1256 if it were a separate instrument, but it was not clear that this rule should apply to a component of the CDI. Second, the economic equivalence posited between the instrument and its components, if separately purchased, was only approximate because the components would have value deriving from the fact that they were separately tradable whereas the CDI typically was unitary; moreover the value of the instrument also could be greater or less than the values of its parts taken together if different tax rules (such as mark to market) applied to the components when separate than when embedded. Third, the basic theory of the rules that no portion of the contingent piece could be treated as debt seemed not to accord with economic reality.

These and other criticisms led, in 1994, to the withdrawal of the 1991 proposed regulations and the issuance of proposed regulations applying the current noncontingent bond method; the 1994 regulations were finalized in 1996. As described above, they set out a quasi-integration scheme that in effect presumes that all amounts payable under the instrument other than principal are interest. This presumption generally carries over to dispositions of CDIs, gain on which is treated as interest income, and loss on which is generally treated as ordinary to the extent of previously accrued net interest inclusions. The advantages of the final approach are thought to consist in its relative simplicity and administrability. Rather than attempt to decompose a CDI into its constituent elements, the rules disregard the specific character of the various elements that make up the instrument and instead look to the basic expected cash flow. This method avoids the problems of indeterminate bifurcations, of treating what is economically interest as something else because there is a remote chance of nonpayment, and of complex computations for a variety of different composite elements.

Notwithstanding these advantages, there is substantial question whether the current rules represent a real advance over the bifurcation approach of the 1991 rules. The criticisms offered of the latter


See Treas. Reg. § 1.1275-4(b)(8).

See, e.g., Kau, note 25, at 1007.
are only partly justified as a critique of bifurcation generally. As Lawrence Lokken and David Weisbach have separately noted, bifurcation is in principle desirable for CDIs, despite its rather artless execution in the 1991 proposed regulations.\textsuperscript{191} The reasons are twofold. First, bifurcation has the potential for substantially greater accuracy than integration as long as the tax law distinguishes among the fundamental units that a CDI can comprise.\textsuperscript{192} If the treatment of these units is well established and the bifurcation method provides unambiguous disaggregation rules, then each kind of investment will be taxed the same, whether it stands alone or is embedded in another instrument. The integration approach of the current regulations does not observe this consistency principle. Whichever view the tax law ultimately takes about the proper treatment of such instruments as forwards and futures on one hand and CDIs on the other, at least one of these instruments is taxed incorrectly under current law.

Second, and as a corollary to the first criticism, bifurcation substantially undercuts arbitrage opportunities that arise where the composite is treated differently from economically similar or identical components that are themselves publicly traded. As an example, the current regulations attempt to accrue interest on an option or forward contract embedded in a CDI, but the interest components of these instruments when held separately often goes untaxed.\textsuperscript{193} This inconsistency permits a taxpayer who purchases a CDI and enters into offsetting forwards or options to achieve an after-tax benefit with zero pretax investment (other than transaction costs). A properly applied bifurcation approach would not permit this arbitrage opportunity.

Furthermore, the complaint that the economic equivalence between the embedded instruments in a CDI and separate options and forwards is only approximate ought not provoke concern given that the regime that ultimately prevailed contains substantially greater inaccuracies. Integrating the embedded financial instrument into the debt piece of the CDI completely ignores the different treatment of the financial instruments when issued separately. If the tax law generally is going to respect differences between these financial instruments and debt, then a regime that collapses the two for CDIs is substantially more inaccurate than one that merely disregards the differences between a nonseverable option or forward embedded in a CDI and one

\textsuperscript{191} Lokken, note 187, at 497 ("In concept, the bifurcation rules are sound."); Weisbach, Tax Responses, note 6, at 511-26 (arguing that "[b]ifurcation . . . initially seems to be the best method of taxing hybrid instruments").

\textsuperscript{192} See Weisbach, Tax Responses, note 6, at 513 (noting that rules must specify how complex instruments are bifurcated in order to avoid the problem of multiple and inconsistent bifurcations).

\textsuperscript{193} The enactment of § 1259 went some way toward lessening this discontinuity.
that is separately issued and tradable. Moreover, there is little evidence to suggest that the separate tradability of the components has a significant impact on value.\textsuperscript{194}

Although the proposal offered here represents a return to the general bifurcation approach that the 1991 regulations adopted, it also embodies the elements of a desirable bifurcation regime as described by Weisbach and Lokken. Because it identifies and taxes the debt portion of all financial instruments while providing for wait-and-see taxation only where either the taxpayer assumes an investment risk or administrative or similar considerations support the wait-and-see approach, it respects the line the tax law has long drawn between returns on equity and other kinds of returns. In this sense it gets the “right” answer on taxation of the constituent elements of CDIs, assuming the tax law continues to apply different rules to debt and equity. The proposal also largely eliminates the inconsistency between the taxation of CDIs and their component instruments—a signal difficulty of the current CDI rules and one not resolved under the earlier bifurcation scheme. Finally, it eliminates discontinuities in the treatment of similar composite financial instruments, such as NPCs and CDIs, again because of the similar disaggregation scheme that applies. From an economic perspective, these instruments differ from each other primarily in two ways, neither of which affects the application of the rules proposed here. Currently, the CDI rules apply to certain publicly-traded debt instruments, whereas the NPC rules apply more broadly to instruments such as an equity swap. In addition, NPCs more typically involve the possibility of net periodic payments traveling in either direction while the instrument is outstanding. In this respect they do not produce “interest” under its accepted tax definition of payment for the use or forbearance of money;\textsuperscript{195} rather they more typically represent either a risk management tool or a wager.\textsuperscript{196}

It is not necessary to work through a sample CDI in detail in order to see how the proposal achieves these results. Consider again the instrument described in Example 10, a CDI with fixed annual interest payments of $60,000 for 10 years and a contingent payment of $1 million, either plus the excess of the value of 10,000 shares of certain publicly-traded stock (the stock value) over $350,000, or less the excess of $350,000 over the stock value, at maturity. Economically, this instrument consists of a fixed-rate loan together with a cash-settled

\textsuperscript{194} See Weisbach, Tax Responses, note 6, at 521 (“There is no evidence that bundling instruments into a single security significantly changes their economics.”).

\textsuperscript{195} See Deputy v. Du Pont, 308 U.S. 488, 498 (1940).

\textsuperscript{196} See Weisbach, Tax Responses, note 6 at 498 (“A prepaid forward looks much like a contingent payment debt instrument except that the amount guaranteed to be returned is not sufficient for the instrument to be classified as debt for tax purposes.”).
PPF of $350,000 for the stock. Under the carve-out approach, the parties would allocate the $1 million principal amount to each of these components. Interest would accrue on both of the constituent instruments. The loan of course is a fixed-rate debt instrument. The PPF has an interest-like component as well. Under the proposal outlined here, it would be taxed under either realization principles applying expected value taxation akin to those in Example 9A, or some other regime that requires current accrual of interest and expense. Since the instrument is cash-settled, there is no investment risk in the reference stock associated with the issuance of the CDI. Congress therefore would be free to adopt either realization-type principles or a mark-to-market or other non-realization-based regime for taxing such a PPF, without running afoul of the realization principle.

Congress nevertheless might have good reason to adopt at least the timing principles of realization-based taxation for such a CDI. The reason is that CDIs often will not be cash-settled. If realization-based taxation applies to physically-settled but not cash-settled CDIs, then the tax law draws a line between instruments that differ only in the medium of payment. If an issuer or holder is largely indifferent between them, there is apt to be tax gamesmanship at the margin. As an example, consider the economically equivalent non-cash-settled version of the instrument in Example 10. It would provide for a guaranteed payment of $650,000 cash plus 10,000 shares of the reference stock on the maturity date; this set of rights is identical to that provided in the example, except that the holder ends up with stock and less cash. More generally, CDIs often are convertible into equity of the issuer or a related party, or are exchangeable into equity of an unrelated party. Such a convertible or exchangeable instrument economically constitutes a CDI together with one or more physically-settled options or PPFs.

Example 11: XYZ Co. issues an instrument for $1 million providing for annual interest payments of $40,000 for 10 years and $1 million on maturity. In addition, the holder has the right to forgo the repayment of the principal amount on maturity in exchange for 1,000 shares of ABC Co. stock; ABC is not related to XYZ for tax purposes. On the issue

197 Such instruments have long been treated as non-CDIs when convertible into stock of the issuer or a related party. See Reg. § 1.1275-4(a)(4). I follow customary usage and refer to such instruments as “convertibles” and to instruments that can be exchanged for equity of an unrelated party as “exchangeables.” The exclusion of convertibles from the CDI rules is widely recognized as exceptional. See, e.g., Dana L. Trier & Lucy W. Farr, Rev. Rul. 2002-31 and the Taxation of Contingent Convertibles, pt. 2, 96 Tax Notes 105, 105 (July 1, 2002) (noting the “nonneutrality that results from a special treatment of con-
date, an option to purchase 1,000 shares of \( ABC \) stock for $1 million on the maturity date costs $100,000.

Though structured as a fixed-rate debt instrument combined with an exchange right, in economic substance the instrument in *Example 11* is equivalent to two instruments: a fixed-rate debt instrument issued for $900,000 paying $40,000 annual interest and $1 million at maturity, and an option to purchase 1,000 shares of \( ABC \) stock on the maturity date for $1 million. Because the straight debt portion is worth $900,000 but pays $1 million at maturity, it has $100,000 of OID. The second piece is a physically-settled option the tax analysis of which follows that of the basic option described in Section III.B.

Consider now the same instrument, except that instead of the exchange right, the instrument provides for $1 million at maturity plus any excess of the value of 1,000 shares of \( ABC \) stock over $1 million on that date. Economically the cash-only version of the instrument is the same as the one with the exchange feature; only the manner of payment differs. The question is what impact providing nonrealization timing or character rules to this variation has, given that realization taxation, as set out in Sections II and II in the case of carve-out transactions, should apply to the instrument that has the exchange feature. The difference could be substantial irrespective of whether the capital gain or loss inherent in the underlying asset was taxed during the pendency of the option under the Black-Scholes approach. In particular, if it was taxed, there would be a combination of interest expense and short-term capital gain or loss that would accrue on the physically-settled option under the dynamic hedging model described above. In general as an option increases in value (or more generally the option delta approaches one) the amount of deemed interest paid under the dynamic hedging model increases. This increase reflects the holder's use of added borrowing to finance the purchase forward of increasing portions of the underlying asset. At the same time, the holder of such an option would have associated short-term capital gain as the value of the underlying asset that is deemed owned increased. If cash-settled options were treated as generating ordinary income and expense exclusively, then a taxpayer could enter into opposed positions, one cash-settled and one physically settled, the result of which was a zero net economic investment but that generated net short-term capital gain or loss. If cash-settled options were treated as

vertibles that differs radically from that applicable to other hybrid debt instruments”); see also David P. Hariton, Conventional and Contingent Convertibles: Double or Nothing, 96 Tax Notes 123, 123 n.3 (July 1, 2002) (quoting discussion of other commentators regarding the historical basis for the exceptional treatment of convertibles), 123-24 (describing exceptional treatment of convertibles).
generating short-term capital gain or loss, or if a basketing regime applied to them, this problem would be avoided.

If capital gain or loss was not taxed during the pendency of the option under the Black-Scholes model, then the disparity in treatment that results from different timing rules still would create an arbitrage opportunity. Consider again a taxpayer that enters into offsetting options, one physically settled and the other cash-settled. Although elective character treatment is not available, the taxpayer might be able to generate a net interest expense or other ordinary loss without an associated economic loss. Consistent use of realization rules would be one way (though not the only way) to avoid this result.

V. CONSISTENCY AND CONTINUITY IN THE TAXATION OF FINANCIAL INSTRUMENTS

In the preceding Section, I showed how adoption of the principles identified and explained in Sections II and III could simplify the taxation of financial instruments and reduce opportunities for arbitrage and deadweight loss in the tax system. In concluding this discussion, it is helpful to situate the proposal within the more general framework that commentators often have used to analyze the taxation of financial instruments.

Earlier, I indicated that the two areas in which room for improvement is greatest are consistency—treating formally different but economically identical instruments the same—and continuity—treating economically similar instruments similarly.198 The distinction between continuity and consistency roughly maps onto that between hybridization and synthesis, two additional concepts that have received substantial attention in the literature on financial instrument taxation.199 Hybridization is the construction of an asset, such as a CDI, that has features of two or more other assets that enjoy distinct tax treatments but is not reducible to either. Synthesis is the replication of returns of one type of instrument by holding two or more positions or assets that individually differ from the instrument but together exactly mimic it; an example would be a share of non-dividend-paying stock composed of the purchase of a zero coupon bond and a call option on the share, and the sale of a put option on it.

The issues that hybrids and synthetics raise are conceptually distinct, at least at a level of specificity relevant to incremental tax re-

198 See text accompanying notes 6-11.
199 See, e.g., Strnad, note 7; Weisbach, Tax Responses, note 6.
200 At the most general level, hybrids pose the problem of
determining the tax treatment of an instrument that is similar to two
(or more) differently-taxed instruments but is not reducible to either.
As noted above, the tax law typically has adopted an analogical, or
"cubbyhole," approach to this problem under which the instrument is
taxed like the one to which it is most "similar," though the law also
has applied bifurcation or integration on occasion.201 Examples of the
analogical approach include the classification of corporate obligations
as debt or equity, but not both,202 and the taxation of a debt instru-
ment with variable returns as a CDI or a variable debt instrument, but
not both.203 Examples of bifurcation include the now-withdrawn 1991
proposed CDI rules, which disaggregated such instruments into fixed
and contingent components,204 and the rules that cover NPCs with
certain "significant" up-front payments, which are treated separately
from the NPC proper as loans.205 Examples of integration include the
current CDI rules206 and the proposed NPC regulations covering sig-
nificant nonperiodic swap payments.207

Synthetics present the distinct problem of taxing two or more re-
lated, often offsetting positions held by the same taxpayer, such as the
combination of a long and a short position in the same or closely re-
lated commodities, or the purchase of a series of zero coupon bonds
maturing in a manner that mimics the maturity on a single bond bear-
ing ordinary coupons.208 When the taxpayer holds a synthetic, the
combined characteristics of the instruments of which it is composed
will mimic those of another instrument that enjoys distinct tax treat-

200 See Weisbach, Tax Responses, note 6, at 525-26 (arguing that the issues remain dis-
tinct only as long as different generic economic returns remain subject to different tax
 treatments).

201 I use the term "bifurcation" to apply to decompositions generally, irrespective of
whether the division is into two, or more than two, basic assets or types of return. Under
integration, all of the returns from the instrument are combined and subject to tax on the
same basis irrespective of their economic "substance" as fixed or contingent, or "capital"
or "ordinary." See generally Kau, 25, at 1005-1007; Weisbach, Tax Responses, note 6, at
492-94 (both discussing differences between bifurcation and integration).

202 See IRC § 385(a). Interests historically have been, and currently are, classified as
either debt or equity, but not as both, even though current law technically authorizes bifur-
cation in some cases. See id; see also § 385(b) (listing factors according to which a debtor-
creditor or a corporation-shareholder interest is deemed to exist); see also Rev. Rul. 83-98,
1983-2 C.B. 40 (classifying certain "adjustable rate convertible notes" that concededly con-
tain both debt and equity features as equity, rather than as part debt and part equity).

203 See Reg. §§ 1.1275-4 (CDIs), -5 (variable rate debt instruments).

204 See text accompanying note 186.

205 See Reg. §§ 1.1275-4(i)(2)(iii)(B); 1.446-3(g)(4). But see Prop. Reg. § 1.446-3(g)(6)
(applying integration method akin to that for CDIs to "significant nonperiodic payments"
expected to be received under an NPC).

206 Reg. § 1.1275-4.

207 Prop. Reg. § 1.446-3(g).

208 See Weisbach, Tax Responses, note 6, at 526.
ment. If the tax law respects the separate status of the instruments, there is a mis-match between the economics of the combined position and their tax treatment. Where the tax law specifically has addressed synthetics, it generally either has integrated the component parts into a single instrument, or, more commonly, has adopted a "partial integration regime" that denies or defers the tax benefits resulting from ownership of the separate but related positions. 209 Partial integration provisions include the deferral of losses on certain related-party sales, 210 straddles 211 and wash sales. 212 Full integration rules include those applicable to certain foreign currency 213 and debt hedges, as well as the already described rules for CDIs. 214 More generally, the step transaction, sham transaction, or economic substance doctrines may apply to combine nominally distinct assets or positions into a single position, in effect a form of equitable integration. The tax law also may disregard or collapse circular cash flows or other arrangements that have no economic effect. 215

Recently, advocates for reform have argued that the tax law should use integration as a method to solve the problems of both hybrids and synthetics, principally on the grounds of simplicity and administrability. 216 The carve-out treatment proposed here, however, represents a form of bifurcation. It disaggregates assets into equity and nonequity positions to which rules for wait-and-see and accrual taxation, respectively, then are applied. As others have argued, however, once one recognizes that hybridization and synthesis represent distinct problems, it becomes questionable whether a single approach—inte-

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209 The phrase is Weisbach's. See id.
210 IRC § 267. As Shuldiner has observed, the effect of § 267 is to treat the related parties as a single party, so that the sale and purchase are collapsed and no transaction is deemed to have occurred for income tax purposes. Shuldiner, Consistency, note 185, at 786.
211 IRC § 1092.
212 See IRC § 1091.
213 Reg. § 1.988-5.
214 Reg. § 1.1275-6.
215 See, e.g., Reg. § 1.338(h)(10)-1 (providing that circular cash flow on certain qualified stock purchases may be disregarded for tax purposes). The kinds of rules applicable to synthetics as opposed to hybrids provides further evidence that they present distinct problems. Synthetics generally present a problem of tax avoidance; it therefore is not surprising that equitable tax doctrines, such as the economic substance and step transaction rules, are among the primary tools at the government's disposal to deal with them. Hybrids also may present tax avoidance problems, but if they do, it typically is because of the disparity between compliance with technical tax rules and the economic result that should obtain. More commonly, hybrids present the distinct problem discussed above of classification of an instrument the returns on which are mixed.
gration or bifurcation—can resolve them. In particular, the advantages that bifurcation offers for the treatment of hybrids as contrasted with synthetics have been well documented by David Weisbach.\textsuperscript{217} As long as the tax law provides an unambiguous “spanning set,” or set of fundamental constituents into which complex instruments are disaggregated, bifurcation substantially reduces or eliminates uncertainty and tax planning opportunities that hybrid financial products create, because it applies the same set of rules to a given type of return, irrespective of whether the return is embedded in a larger instrument, or instead stands alone. The analysis of financial instruments presented in Sections III and IV demonstrates some of these advantages.

Bifurcation generally is thought to be less helpful, however, for dealing with synthetics, because they do not present the problem of classifying new instruments (though they may involve such instruments), but of determining when nominally distinct instruments “offset” each other in a way that should preclude respecting their separate status.\textsuperscript{218} Because it is always possible to combine elements of the spanning set to achieve a result that mimics another instrument, the articulation and application of a spanning set by itself does not solve the problem of synthetics. Therefore, as long as the tax law does not provide either a set of rules for integration, or some other method of denying or deferring the tax benefits from entry into offsetting positions, synthetics will continue to pose problems even if applicable bifurcation rules are unambiguous and comprehensive. Consider the following example:

**Example 12:** Assume that the spanning set includes, among other elements, straight debt, options, and equity. Individual A owns one share of appreciated XYZ stock, which does not pay dividends. On Day 1, A, wishing to realize the gain in her share but to defer tax, purchases a put on the stock exercisable on Day 2, one year hence, writes a call on the stock with the same strike price and strike date as the put, and issues a zero coupon bond that will mature on Day 2 at the strike price.

Under the put-call parity theorem A has entered into a position that is economically identical to a sale of the XYZ stock on Day 1.\textsuperscript{219} In the absence of special rules, her treatment differs from what it would be had she sold the stock. On Day 1, A would receive the present value of the share of XYZ stock without recognizing gain. She also would

\textsuperscript{217} Weisbach, Tax Responses, note 6, at 509-11.
\textsuperscript{218} Id. at 493-94.
\textsuperscript{219} See text accompanying notes 153-56.
be entitled to interest deductions on the zero coupon bond between Days 1 and 2. On the strike date either she would exercise the put or the counterparty would exercise the call, triggering gain recognition. The sale proceeds will offset exactly the amount due on the zero coupon bond.

Under current law, this set of transactions might be subject to tax as though it were a sale of the stock on Day 1, but that outcome is not certain. Although § 1259 treats the constructive sale of certain appreciated financial positions as current dispositions subject to tax when entered into, this provision, which is an integration rule combining the present agreement to sell with the subsequent disposition of the subject property, is relatively narrow and likely would not apply to the transactions described in Example 12 because there is no formal sale.220 Even if it did apply, A could circumvent it if she were willing to retain an amount of upside potential or downside risk with respect to the stock such that she did not dispose of “substantially all” of the benefits and burdens of owning it.221 In that case, she could lock in a portion of the gain, indeed most of it, without current tax. Although there is some authority outside of § 1259 supporting the treatment of the purchase of the put and sale of the call as a forward sale, it is relatively easy to circumvent this result by having the strike price of the put be somewhat lower than that of the call, or having the strike dates differ somewhat.222 More generally, where a special rule identi-

220 See IRC § 1259(c)(1)(A)–(D) (including a forward contract, but not including the sale of a call and purchase of a put, among the transactions qualifying as constructive sales apart from further specification in regulations), (d)(1) (defining a forward contract subject to the constructive sales rules as a contract to deliver a substantially fixed amount of property for a substantially fixed price). Although § 1259(c)(1)(E) provides authority for regulations pursuant to which transactions “that have substantially the same effect as,” among other transactions, a forward contract are treated as constructive sales, no regulations have been promulgated to date. The Commissioner also has general authority to apply step-transaction principles to combine formally distinct steps, the intent and effect of which are to achieve the same result that would obtain if the transaction were accomplished in a single step. See Gregory v. Helvering, 293 U.S. 465 (1939).

221 See H.R. Conf. Rep. No. 105-220, note 171, at 514 (providing that regulations are expected to treat certain “collars,” in which the seller retains some risk of loss and opportunity for gain, as constructive sales for purposes of § 1259 if “substantially all” of the risk of loss and opportunity for gain are disposed of). Note that § 1259 also would not apply if the transaction did not involve the constructive disposition of a position that was both “appreciated” and a “financial position.” Suppose, for example, that A was in a loss position with respect to the stock and that A wanted to generate current ordinary losses to offset other ordinary income. The transaction would not fall within the constructive sales rules because the position would not be appreciated. Nor would these rules apply if the asset sold were not a financial position but, instead, some other kind of asset, such as real estate.

222 Compare Rev. Rul. 72-543, 1972-2 C.B. 87 (put and call arrangement between nominal purchaser-lessee and nominal seller-lessee transferred all benefits and burdens to latter, who was deemed owner), and Progressive Corp v. United States, 970 F.2d 188 (6th Cir. Imaged with the Permission of N.Y.U. Tax Law Review
fying offsetting positions does not apply, taxpayers can achieve desired tax results without associated economic investment through the use of synthetic instruments.

As these remarks suggest, reaching solutions to the different problems that hybrids and synthetics pose requires more than one approach, at least within a framework that accords different treatments to different kinds of returns. Hybrids create arbitrage opportunities and business costs because of the uncertainty of their classification, the possibility of multiple and conflicting decompositions to which a single instrument or similar instruments may be subject, and the mis-taxation of hybrid returns when they are taxed under the cubbyhole approach. As argued here and by others, bifurcation, if properly applied, offers a reasonably good solution to these problems. Synthetics, by contrast, create difficulties because of the fact that nominally distinct assets, even if their tax treatment is settled, can offset each other to produce what is in substance another asset, subject to different tax rules. The challenge they pose to the tax law is that of properly identifying when and how positions should be integrated, whether or not they are elements of the spanning set. For example, detailed rules, such as those of § 1259, can be circumvented relatively easily, while generic standards may create substantial tax costs and deter economically beneficial transactions through uncertainty.

The bifurcation regime developed in this Article thus has primary application to hybrids. It represents a method for decomposing a wide array of assets into elements of a small spanning set. The attractiveness of the set derives from its parsimony and from the fact that it respects arguably the most basic lines the tax law has drawn in its treatment of the kinds of returns that various investments may generate.

Nevertheless, this regime also goes some way to solving problems that synthetics pose. The primary reason is that by its nature the cubbyhole system that the bifurcation regime would replace offers arbitrage opportunities akin to those that synthetics provide. The arbitrage opportunities result from the fact that the cubbyhole system in effect creates synthetics: By treating composite instruments as

1992) (ownership of asset together with put option precluded taking of dividends received deduction, as did ownership of stock together with sale of deep-in-the-money call option), with Penn-Dixie Steel Co. v. Commissioner, 69 T.C. 837 (1978) (no substantial exercise of put or call where strike dates differed and price of underlying property was volatile).

223 See note 6.

224 These costs include not only those of entering into transactions that are economically inefficient, see Weisbach, Line Drawing, note 9, at 1629 (noting “significant” transaction costs to many tax-motivated transactions) but also those of good-faith efforts to comply with the law. See David A. Weisbach, Formalism in the Tax Law, 66 U. Chi. L. Rev. 860, 871 (1999) (discussing transaction costs of drafting and complying with complex rules).
"similar" simple ones, the classification precludes integration of economically offsetting positions that should and would be integrated without any special integration rules under a bifurcation regime. For example, a cubbyhole system that treats a PPF as an ordinary forward enables the purchaser under the PPF to enter into an economically offsetting transaction that generates deductible interest expense. Because the PPF is put in the ordinary forward cubbyhole, the interest income the purchaser realizes under the PPF goes untaxed.

As contrasted with the current set of tax cubbyholes, the spanning set under the carved-out interest regime does not accord different tax treatment to any particular constituent type of return depending on the instrument in which the return is embedded; the basic returns are "instrument-invariant." In essence, the proposed bifurcation regime specifies that positions may comprise one or more of three elements—straight debt, traditional equity, and "expected equity (or expense)" in the case of a right to receive or an obligation to deliver property in the future. All financial instruments are in principle reducible to some combination of these elements. As a result, the number of distinct synthetics that a taxpayer may construct is relatively small, and the opportunities for offsetting treatment through combinations of similar but distinct assets are reduced; in particular, it becomes difficult to create an arbitrage that relies on the presence in an instrument of a debt or equity component that is not taxed as such. 225 The small number of elements in the spanning set also may make it comparatively easy for the government to identify abusive transactions and to articulate rules for integration that do not impair beneficial transactions or create substantial deadweight loss. Finally, and most importantly, the fact that none of these elements consists of other elements in the set substantially reduces opportunities for exploiting inconsistency through synthetics. For example, interest under the carve-out approach always is taxed as such, whether it is expressly stated in a standard debt instrument or implicit as part of an option.

In order to illustrate these points, consider the example of a "stock index growth note," or SIGN, discussed at some length by Alvin Warren: 226

Example 13: On Day 1, Holder purchases from Issuer, X Corp., a five-year SIGN for $1,000. The SIGN pays $1,000 at maturity plus $1,000 times the percentage increase, if any, in

225 See Weisbach, Tax Responses, note 6, at 520 (noting that more uniform rules would reduce the problem of multiple bifurcations).
226 See Warren, note 1, at 483.
the S&P 500 at the end of five years. Assume that on Day 1 the AFR is 10% compounded annually.

Warren identifies three different possible bifurcations of the SIGN in Example 13, each enjoying different tax treatment under current law, in support of his claim that disaggregation and integration by themselves cannot solve the problems that new financial instruments create. Although this claim undoubtedly is correct, the concern appears to be somewhat overstated. Disaggregation and integration may be able to solve a wide array of problems where the spanning set is small and internally consistent. For example, under the approach advocated here, each of the bifurcations he identifies has the same tax result.

The first bifurcation Warren discusses is the one that would have applied under the 1991 proposed CDI regulations. These regulations would treat the SIGN as equivalent to an investment unit consisting of a debt instrument issued for $621 and paying $1,000 at maturity, and a cash-settled option on the percentage increase, if any, of $1,000 of the S&P 500 during the contract term issued for $379. Under the OID rules $379 of interest would accrue on the debt instrument during the term, while taxation of the option would await exercise, cancellation, lapse, or disposition.

Warren next describes two alternative characterizations of the SIGN that have tax consequences under existing law that are inconsistent with those under the first bifurcation. First, the SIGN could be likened to a loan of $1,000 at 10%, together with a forward contract obligating Holder to exchange the interest that accumulates on the loan for the excess, if any, of the S&P 500 over $1,000 at the end of five years. According to this characterization, $621 of interest would accrue on the $1,000 loan and the forward contract would generate no tax consequences until the end of the term. Under then-issued proposed regulations (since withdrawn) Issuer would deduct the interest on the entire issue price, much as it can under the current noncontingent bond method applicable to CDIs.
Warren’s second alternative characterization results from application of the put-call parity theorem. Since the SIGN already has been analyzed as an OID debt instrument together with a call option, under put-call parity Holder could be treated as purchasing $1,000 of S&P 500 index units and five-year puts at $1,000. Under this characterization, Holder has no tax consequences until the end of the five-year term.

The first conclusion to draw from these recharacterizations is that an effective bifurcation regime must provide clear rules for how the bifurcation is to take place. As Weisbach points out, bifurcation is not self-executing. This requirement is not, however, fatal to the bifurcation approach. The object of bifurcation is to preserve consistency and continuity given the basic fact that the tax law treats different kinds of returns differently. If a complex instrument economically is equivalent to two or more combinations of other instruments that enjoy different tax treatments, it becomes necessary to identify which of these combinations applies in order to determine the tax consequences of the complex instrument. The fact that the taxpayer also may be able to acquire separately the components of one of the other combinations presents a distinct problem of integration: When should such a combination of formally distinct instruments be respected, and when should it be collapsed and treated as a unit? This problem, however, arises whenever different economic returns enjoy different tax treatments.

The second conclusion is that a bifurcation regime is apt to be less successful when the members of the spanning set are themselves inconsistently taxed. This circumstance arises when, economically, one or more such members represent a composite of returns that are subject to different tax rules when they are not combined in the spanning set member. In effect, by treating the composite of returns as a fundamental unit for tax purposes, such a bifurcation regime works against consistency and continuity by sanctioning mistaxation through integration in the member itself. Warren’s last alternative characterization of the SIGN illustrates this point. The put-call parity theorem establishes an equivalence involving four elements, each of which is treated as a fundamental unit under current law: a put option, a call option, a zero coupon bond, and an underlying asset. Economically, the first three of these contain interest components, but only the rules for the zero coupon bond tax this interest. Because the tax law ef-

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234 Warren, note 1, at 485-86.
235 See Weisbach, Tax Responses, note 6, at 513.
236 In point of fact, the distinction between equity and debt is somewhat formal. Some debt may have equity features, and vice-versa, so that determining the tax treatment of a particular return based on whether it is denominated “debt” or “equity” may be somewhat
fectively treats an option as a member of the spanning set but also seeks to tax interest as it accrues, the elements of the spanning set themselves create opportunities for tax avoidance through synthetics.

A final conclusion to draw from Warren's discussion is that a spanning set that does not tax its elements inconsistently at least would prevent the bifurcation regime from working against itself in this way. Though opportunities for arbitrage through synthetics will persist, a consistent bifurcation regime will not sanction them by respecting fundamental units that themselves contain inconsistent characterizations. The approach developed in this Article avoids this difficulty because it consistently separates interest-like accruals from other kinds of returns. To see this point, consider again Warren's three characterizations of the SIGN under the carve-out system proposed here. I assume for this purpose that the carve-out rules would apply whether or not ownership of the SIGN involves the assumption or disposition of an investment risk. Under each of Warren's characterizations, the tax consequences would be identical.

The first characterization treated the SIGN as a zero coupon bond issued at $621 together with a cash-settled option contract on the S&P 500 index. So viewed, the SIGN would generate $379 of OID interest income less interest deductions from deemed borrowing on the option, together with the remaining consequences of call option ownership described in Section III.B. This characterization conforms to the basic carve-out analysis, separating debt from the property transfer and treating the latter under the carve-out rules.

Warren's second characterization treated the SIGN as a $1,000 loan together with a cash-settled forward contract for the purchase of the excess, if any, of the S&P 500 over $1,000 in five years. Note first that this characterization is not quite accurate. The separate instrument is in effect an option contract that is post-paid, not an ordinary forward contract, because the implicit strike price is greater than zero. In other words, the contract does not involve the purchase forward of arbitrary. See, e.g., Boris I. Bittker & James S. Eustice, Federal Income Taxation of Corporations and Shareholders § 4.02[1] (7th ed. 2000) ("'[D]ebt' and 'equity' are labels for the two edges of a spectrum, between which lie an infinite number of investment instruments . . . ."). Therefore the suggestion that equity does not have an interest component is not entirely accurate. Further, in some cases even simple common stock may represent a hybrid between real equity-like risk and a debt-like return, depending on the investment and other policies of the issuer. These considerations underscore the partial nature of the solutions offered in this Article.

If purchase of the SIGN did not involve such an assumption or a disposition, Congress might well adopt these rules nevertheless, given the opportunities for arbitrage that a mark-to-market or other regime for non-investment-risk bearing SIGNs might create. See Section IV.B.

Warren, note 1, at 484.
all the value (whatever it may be) of $1,000 of the S&P 500 index, as measured on Day 1, in five years, but only of the excess, if any, of that index over $1,000 in five years. A forward purchase of such a benefit is an option contract.

The following observations illustrate this point. First, note that an ordinary option is akin to a regular PPF in that payment for the option right typically occurs before the exercise date. This feature of an option is not, however, necessary to achieve the basic economics of the option, which involves the exchange of a fixed payment for either the opportunity to enjoy contingent upside or protection against contingent downside in the underlying property. Consider the following example:

**Example 14:** On Day 1, 100 units of the S&P 500 index have a fair market value of $1,000, and an option to purchase this quantity of the S&P 500 index for $1,000 on Day 2, five years later, costs $379 (the S&P 500 Option). On Day 1, A and B agree that on Day 2, A will pay B $611; in exchange, B will permit A to purchase 100 units of the S&P 500 index on Day 2 for $1,000 (the Forward Option). The risk-free rate of interest on Day 1 is 10%.

The only difference between the Forward Option and the S&P 500 Option is that A pays later, and therefore more, under the Forward Option, because the Forward Option price includes the time value of deferral on the option premium. The fundamental optionality is present in both instruments. In exchange for a fixed payment, A obtains the benefits of owning 100 units of the S&P 500 index if it appreciates to more than $1,000, but does not bear the burden of any decline below that amount. For this reason, A could replicate the Forward Option through the same dynamic hedging that applies to any standard option. The Forward Option in Example 14 is not, however, a standard forward contract, because it does not transfer the benefits and burdens of ownership of 100 units of the S&P 500 index.239

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239 These observations show why a PPF can be conceptualized as the limit case of an option with a strike price of zero. See David F. Levy, Disparities in Treatment Among Prepaid Forward Contracts, Deep in the Money Options, Prepaid Swaps, and Contingent Debt Instruments, in Tax Strategies for Corporate Acquisitions, Dispositions, Spin-Offs, Joint Ventures, Financings, Reorganizations & Restructurings, available in WESTLAW, 432 PLI/Tax 729, 745 n.24 (1998) ("Indeed, as the option premium increases and the strike price of the option decreases, the economic differences between a deep in the money purchase option and a standard prepaid forward contract begin to disappear."). At this point, however, all of the optionality has disappeared, because the purchaser has not limited her downside as compared to ownership of the underlying asset. In effect, she has purchased the asset. See David F. Levy, Using Financial Derivatives as Real Estate Investment Vehicles, 25 J. Real Estate Tax’n 231, 244 (1998) ("[T]he key difference between a
Therefore, if the SIGN in Example 13 is bifurcated into a $1,000 loan and some other financial instrument, the financial instrument is the cash-settled version of the Forward Option described in Example 14, not an ordinary cash-settled forward contract. In this variation, Holder would receive $611 of interest income during the term on the $1,000 loan, while, under the forward option contract, she is obligated to pay $611 at the end of five years in exchange for the appreciation (if any) between Days 1 and 2 in $1,000 of the S&P 500 index as measured on Day 1. On Day 1 this right is worth $379, the same as an actual cash-settled option on the appreciation in the S&P 500 index if it had been purchased on Day 1, but it is offset by the obligation to deliver $611 at the end of the five-year term. The question is how to treat this right and offsetting obligation.

If the forward option contract were a simple forward contract of the kind described in Section IV.A, realization principles would treat the rights the contract represents as appreciating on a constant yield-to-maturity basis to $611, irrespective of the actual value of the underlying asset, just as in the case of the normal forward purchase of an asset. In that case, the right under the forward obligation would be deemed to appreciate on the same schedule as the obligation to deliver $611 after five years, so that Holder would have no tax consequences on the forward option purchase.

Holding an option, however, is not the same as holding some or all of the underlying asset; it is akin to continuous realizations. For this reason, it is not appropriate to treat the forward option as though it appreciates at the same rate as the obligation to pay for it does. Instead, the obligation to deliver $611 is a separate obligation incurred by Holder on Day 1, received in exchange for the forward option. The net appreciation in the obligation is $242. When applied against the $611 interest income on the $1,000 loan, the net result is $379 of interest income plus an option taxed under the dynamic hedging principles previously described. This result is the same as viewing the instrument as consisting of an OID debt instrument issued at $621 and paying $1,000 at maturity in five years and a cash-settled option contract on the appreciation in the S&P 500 index costing $379.

Warren's final characterization of the SIGN relies on the equivalence under the put-call parity theorem between ownership of a zero coupon bond and a call, and ownership of the underlying asset and a put. Here the asset is the number of units of the S&P 500 index that $1,000 buys on Day 1. These two sets of instruments would be taxed call option holder and the holder of a long forward contract is that the option holder's downside is limited to the option premium, whereas the holder of a long forward contract's downside is equal to the forward price of the forward contract."
the same under the carved-out interest rules. The zero coupon bond generates interest inclusions while the call would generate interest deductions; the deductions will be less than the inclusions because the deemed borrowing would finance purchase of less than the full underlying asset. The net difference would be equal to the amount of interest on the deemed lending that the put option generates, while ownership of the asset itself would produce no tax consequences.

Note that the same identity of tax consequences would result under the carve-out rules for the synthetic stock sale in Example 12. In that transaction the holder of the asset sold a call, purchased a put, and issued a zero coupon bond. Whether disaggregated into these component parts or treated as an asset sale, the consequences would be the same. The deemed interest accruals on the two options generally would offset the interest deductions on the zero coupon bond, even under a quasi-mark-to-market regime that approximated the deemed sales and purchases under Black-Scholes, while the receipt of the call option premium and purchase of the put would trigger built-in gain or loss.

The identity of outcomes under these different bifurcations supports the more general claim that a small, internally consistent and rigorously applied spanning set not only resolves the basic problem of discontinuity that hybrids exploit, but goes some way to overcoming the inconsistency that is inherent in the cubbyhole approach. It also should be said, however, that the carve-out rules, like any bifurcation regime that preserves a multiple-element spanning set, do not eliminate problems of inconsistency. For example, one stock may serve as a hedge against another; a taxpayer who purchases both kinds of stock creates an investment that is similar to debt. Similarly, stocks that are substitutes or near substitutes for each other can form a synthetic debt instrument if the holder sells one short and purchases the other forward. If the stocks are perfect hedges with respect to returns in excess of the riskless rate, then the instrument is identical to debt. In a spanning set that includes different rules for debt and equity, the effect of such offsetting equity positions will not be addressed absent specific rules that deal with them. More generally, under such a spanning set any diversified portfolio will limit the holder’s upside potential and downside risk, so that the overall return moves in the direction of debt. For a variety of reasons, the reduction of risk in a standard portfolio through diversification has never been treated as

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240 See, e.g., Aaron Lucchetti & Henny Sender, Big Freddie Mac Holders Hang On, Wall St. J., June 13, 2003, at Cl ("[S]everal hedge funds . . . hold Freddie Mac shares offsetting some of the riskier bearish positions in their portfolios. One favorite ploy: selling borrowed shares of Fannie Mae . . . against a 'long,' or buying, position in Freddie Mac.").
cause for taxing returns from it as other than on capital assets. Accordingly, any set of rules dealing with synthetics needs to be able to draw a line between diversification that will not be integrated and offsetting positions that will be. A bifurcation regime, by itself, does not provide a basis on which to do this.

VI. CONCLUSION

Financial contract innovation undermines the federal income tax system in two basic ways, both of which are related to the inconsistent and incomplete application of realization principles in the income tax. First, it disaggregates the kinds of economic returns that a real economic investment generates from ownership of the investment itself. Because historical practice generally supported realization-based taxation for risk-based returns that derived from assumption of an investment risk, but not for other kinds of risk-based returns, the principal tax effect of this disaggregation has been to extend the realization rule to many contexts in which there is neither precedent nor a sound policy basis for doing so. Second, financial contract innovation presents an opportunity for the seemingly limitless combination of different kinds of assets and returns into new assets with new returns. In economic terms these new assets may mimic other familiar assets, or they may have economic characteristics that share those of two (or more) other assets without being reducible to either. In the first case the tax law must be able to identify and tax the combination as the familiar asset; in the second case it must be able to tax the asset in a way that both approaches accuracy as compared to similar instruments and avoids arbitrage opportunities. In the absence of rules that address these distinct effects of synthesis and hybridization, the capacity that financial contract innovation affords to carve up and reallocate returns on underlying assets creates opportunities for tax avoidance by exploiting inconsistency and discontinuity.

I have argued for a two-pronged approach to deal with these problems. The first prong would confine application of the realization rule to the investment-risk return of an asset, and the second would apply realization and accrual principles consistently to all financial returns, whether freestanding or combined as part of a complex financial instrument. The virtues of this approach are several and significant. First, it resolves the basic problems of discontinuity that lie at the heart of the second set of issues described above. As argued

241 These reasons include the disincentive to diversify as well as practical problems of implementing integration rules when the extent of risk reduction can assume any point on a continuum. See Weisbach, Tax Responses, note 6, at 507.
here and by others, bifurcation properly implemented represents the best general approach to the problems of hybrids because it preserves the basic tax treatments that are designed to apply to different kinds of returns, regardless of whether they are received separately or in combination with other returns in the same instrument.

Second, because the approach is consistently applied to all financial instruments, it removes inconsistencies between taxation of the hybrid and of its components. The possibility of inconsistent taxation is further reduced because the spanning set is small and reflects the basic distinctions the tax law has long drawn between investment-based risk and other kinds of risk. The small size of the spanning set under the carve-out rules also makes the more general problem of inconsistency through synthesis more manageable, because of the smaller number of possible combinations of fundamental instruments that a taxpayer can use to offset each other and because of the absence of inconsistency among various elements of the spanning set.

Finally, the approach preserves the basic rules that have always applied to straight debt and equity under the income tax. Adoption of a tax regime that addresses financial contract innovation within the established framework for these plain vanilla assets would impose substantially lower transition costs than would adoption of more sweeping reform, and it also would do comparatively little to upset settled expectations for the vast majority of taxpayers. For these reasons it therefore is likely to represent a more politically viable solution to the problems of financial contract innovation than do the more comprehensive proposals that others have offered.

Having said all of this, it is important to emphasize again the partial nature of this solution. Any approach to the taxation of financial contract innovation that operates within the framework of the realization rule will preserve some opportunities to exploit the rule, because some assets or arrangements are bound to fall close to either side of the line dividing realization and accrual accounting. This proposal is no exception: Opportunities for arbitrage will remain, though they will be greatly reduced. Further, because the distinction between debt and equity is itself somewhat formal, even a relentlessly applied bifurcation regime predicated on the debt-equity distinction will not tax differing economic returns differently in all respects, nor will always it tax similar returns similarly. For nominal stock that has debt-like features, deferral for an interest-like return will be available; for risky debt, current accrual (and deduction) will remain. But these problems already afflict the tax system, so their persistence is to some extent orthogonal to the solution proposed here.
What these and other problems illuminate is the extraordinarily difficult nature of crafting a workable tax system that can deal with the complexities of modern finance. Any solution that operates within real-world constraints will have many of the messy features of the current system, and these may appear particularly unlovely in comparison with proposals for comprehensive reform and simplification that purport to resolve fundamental and far-reaching problems with the income tax. On the other hand, there is legitimate reason to suspect that any proposal for comprehensive reform will bring complexities and compromises of its own that cannot be foreseen before the proposal is actually adopted. While these considerations do not imply that comprehensive reform should not be pursued, they suggest that any compromise proposal that may represent a significant improvement to the current system should be worthy of consideration. This proposal, like others that have preceded it, is offered in that spirit.