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Financial Options in the Real World: An Economic and Tax Analysis

David Hasen
abc@123.com

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FINANCIAL OPTIONS IN THE REAL WORLD: AN ECONOMIC AND TAX ANALYSIS

David Hasen

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FINANCIAL OPTIONS IN THE REAL WORLD: AN ECONOMIC AND TAX ANALYSIS

DAVID HASEN*

ABSTRACT

Many of the consequences of issuing and purchasing options on publicly traded property have been well understood since Black and Scholes developed a model for option pricing. No model of options, however, provides an accurate economic analysis of the actual transactions that issuers and purchasers engage in when options are bought and sold. One consequence of this gap in understanding is that the rules for taxing options remain poorly developed.

This Article provides a transactional analysis of option sales for the first time. The focus is on covered options, but the analysis also has implications for options in which the underlying property serves merely as a reference obligation and is owned by neither party to the transaction. The analysis demonstrates that while all options have as one component a swap of variable risks or returns on the underlying property for a fixed payment, "in the money" options involve, in addition, a forward transfer of the benefits and correlative burdens of a part of the underlying property that is equivalent to a forward sale of that part. Commentators have not identified this embedded forward sale because the payment arrangement between the parties to the option transaction obscures it; however, a comparison of option prices derived under the Black-Scholes model with the theoretical prices of such forwards demonstrates that the transactions are identical. The analysis also illuminates the relationships between options and other common financial transactions, such as collars, and it permits a clear assessment of the advantages and disadvantages of possible tax rules for financial options.

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* Professor, Penn State Law School, Penn State University. I thank Joshua Coval, Arturo Estrada, David Gamage, Rebecca Harrigal, Andrew Kleit, Pamela Lew, Robert Martin, John Rogers, Reed Shuldiner, Lon Smith, Patrick White and participants at the Northern California Tax Roundtable for comments and suggestions. I remain solely responsible for any errors.

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I. INTRODUCTION

The treatment of options is a vexed area in the tax law. At its most basic, an option is a contract between two parties under which one of them purchases from the other the right, but not the obligation, to purchase or sell property (an "underlier") at a fixed price (the "strike price") on a particular date in the future (the "exercise date" or "strike date").[1] Long subject to "open-transaction" treatment, the sale of an option represents one of the few cases in which money can change hands in a commercial setting without triggering any immediate income tax consequences.[2] Instead, the grantor of an option typically includes nothing in income on receipt of payment for the option (the "option premium"), while the option purchaser is entitled neither to an immediate deduction of the option premium[3] nor to amortize the premium prior to the exercise date.[4] Further, unless it is highly likely on the option sale date that the option will be exercised,[5] no sale of the underlier is deemed to have occurred for tax purposes on sale of the option, even though, in economic terms, the option sale is often similar to a partial sale of the underlier. Instead, tax consequences first arise when something further happens in respect of the option, such as its exercise,[6] lapse, cancellation, or disposition.[7]

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[1] JOHN C. HULL, OPTIONS, FUTURES, AND OTHER DERIVATIVES 179-184 (7th ed. 2009).

[2] *See* Va. Iron Coal & Coke Co. v. Comm'r, 99 F.2d 919, 921-22 (4th Cir. 1938); *see also* Rev. Rul. 78-182, 1978-1 C. B. 265; 26 U.S.C. § 1234 (2006). The other major exception to the taxation of cash on receipt rule is the nontaxation of loan proceeds. Cases in which a non-cash exchange of property for property goes untaxed are more common. They include exchanges of certain like-kind properties, 26 U.S.C. § 1031, and the contribution of property to a controlled corporation in exchange for the corporation's stock, 26 U.S.C. § 351(a), or to a partnership in exchange for an interest in the partnership. 26 U.S.C. § 721.

[3] Rev. Rul. 78-182, 1978-1 C.B. 265.

[4] *See* 26 C.F.R. § 1.263(a)-(4)(c)(1)(iii)(E).

[5] Rev. Rul. 80-238, 1980-2 C.B. 96.

[6] Rev. Rul. 78-182, 1978-1 C.B.265 .

[7] 26 U.S.C. § 1234A.

Most commentators view this regime as incorrect,[8] but beyond that partial consensus little agreement exists on how the tax law should apply to options. Options have been variously described as, or as analogous to, services transactions,[9] carved-out property interests,[10] partnerships,[11] amounts received under a claim of right,[12] instances of "dynamic hedging,"[13] and wagers.[14] Each of these characterizations would theoretically support a different set of rules for option taxation. Each has virtues, but none is fully satisfactory. For example, under the carved-out interest approach, the option sale would be viewed as its own complete disposition of a contingent property interest, regardless of whether the option was exercised. This approach has intuitive appeal for call options, which give the option purchaser the right to buy property, but in the case of a put option, where the option purchaser acquires the right to dispose of the underlier, it is difficult to see how the disposition on the option sale date of what appears to be a potential liability counts as a property transaction. Similarly, under a claim of right analysis, the option premium might be viewed not as part of a property transaction, but as a separate transaction creating income for the option grantor because the premium is not subject to limitation on its use by the recipient.[15] Under such an analysis, the premium would be immediately includible in income, though possibly subject to adjustment later on. Immediate inclusion seems to be a sensible result, except that amounts received on condition of providing a service or subject to a future obligation generally are not treated as received under a claim of right,[16] though they might be taxable on other grounds.[17] Further, where the option is "deep in the money" and so highly likely to be exercised, the option sale appears to be more analogous to a forward sale of the underlier than to a payment subject to a claim of right. Comparable difficulties arise under the remaining characterizations mentioned above.

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[8] *See, e.g.*, Eric D. Chason, *Naked and Covered in Monte Carlo: A Reappraisal of Option Taxation*, 27 VA. TAX REV. 135, 138-39 (2007); Noël B. Cunningham & Deborah H. Schenk, *Taxation Without Realization: A "Revolutionary" Approach to Ownership*, 47 TAX L. REV. 725, 775-76 (1992); Calvin H. Johnson, *Taxing the Income from Writing Options*, 96 TAX NOTES TODAY 201-54 (1996); Yoram Keinan, *United States Federal Taxation of Derivatives: One Way or Many?*, 61 TAX LAW. 81, 146-57 (2007). *But see* Kevin J. Liss, *Rationalizing the Taxation of Options in the Age of Derivatives*, 61 TAX LAW. 855, 856 (2008) (arguing that holding option transactions open for tax purposes until exercise, lapse, disposition or cancellation is correct).

[9] Johnson, *supra* note 8, at 6.

[10] Cunningham & Schenk, *supra* note 8, at 780-81.

[11] Bruce Kayle, *Realization Without Taxation? The Not-So-Clear Reflection of Income From an Option to Acquire Property*, 48 TAX L. REV. 233, 277 (1993).

[12] *Id.* at 248-54.

[13] David M. Hasen, *A Realization-Based Approach to the Taxation of Financial Instruments*, 57 TAX L. REV. 397, 429-49 (2004).

[14] Liss, *supra* note 8, at 856-57.

[15] N. Am. Oil Consol. v. Burnet, 286 U.S. 417, 424 (1932).

[16] *See, e.g.*, Rev. Rul. 58-234, 1958-1 C.B. 279.

[17] *See, e.g.,* Schlude v. Comm'r, 372 U.S. 128, 133-37 (1962) (requiring an accrual-method taxpayer to include sums paid for dance lessons to be provided in the future).

Prior to the advent of modern financial products, the failure of the tax law to tax options correctly (for those who so view the current rules) amounted to little more than an irritation. Options were relatively uncommon, tended to be short-lived, and typically were not entered into for tax avoidance purposes.[18] In short, even if options were wrongly taxed, not much hung in the balance. This relatively tolerable state of affairs no longer holds. Modern financial products have rendered options ubiquitous,[19] have made the choice to purchase or sell them depend in many cases solely upon tax considerations, and have extended the terms of many options to economically significant periods.[20] At least three significant problems in option taxation have emerged as a consequence. First, under the current regime, a large class of taxpayers is taxed incorrectly in ways that are economically significant, simply because the option premium goes untaxed for a significant period of time. Second, because the open transaction doctrine differs so dramatically from the accrual or accrual-type regimes commonly applied to other, similar financial instruments,[21] taxpayers can elect their tax treatment at little if any economic cost. For example, a taxpayer seeking an immediate deduction for an option-like premium can enter into an economically similar notional principal contract that permits deduction of the option premium-like payment over time, whereas the same taxpayer can purchase a conventional and economically similar option if deferral of the deduction is preferable. Third, and in a related vein, taxpayers can opt into tax arbitrage without much difficulty through the expedient of entering into arrangements that largely offset for economic purposes but not for tax purposes. Amplifying on the previous example, a taxpayer might purchase an option-like notional principal contract that generates current deductions while selling an economically similar option in return for an option premium that is not taxed in the current period.

Added to these difficulties is the fact that much of the justification for the wait-and-see regime under the open transaction doctrine does not carry over to financial options anyway. Formerly, option purchases tended to be associated with transactions in unique underlying property,[22] and as a consequence the establishment of a financial equivalent for the option would be difficult if not impossible. In the typical case, the reason for the option purchase was that at or near the time of potential purchase of the underlier, some question existed about whether the purchaser wanted or would be able to acquire or retain it.[23] That decision may not have depended upon objective, readily observable financial information, but on imponderables such as whether the particular underlier in question best satisfied the purchaser's personal or business needs or whether financing for the purchase of the underlier would be available.[24] An individual might be willing to buy an antique dresser as long as nothing better was offered at the flea market; Blackacre might suit a farmer's plans to expand operations, but the availability of a bank loan could be uncertain on the day the property is offered for sale. The purchase of a call option in either case would enable the prospective buyer to resolve these contingencies in exchange for a fee. However, quantifying the economic effect of paying the fee—the premium paid for the option—to either party in such a situation is a difficult if not impossible task. In particular, it typically will not be possible to establish a readily observable value for an option of that kind.

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[18] *See generally* Tony Ware, Financial Derivatives—A Brief Introduction, MITACS 6th Annual Conference, May 11, 2005, available at http://finance.math.ucalgary.ca/papers/MitacsShortCourse2005.pdf.

[19] *See generally id.*

[20] *See, e.g.*, 26 C.F.R. § 1.446-3(f)(3) (addressing the tax consequences of options embedded in notional principal contracts having a multi-period life).

[21] In addition to CPDIs, the following instruments are subject to accrual or accrual-type taxation: notional principal contracts, 26 C.F.R. § 1.446-3, original issue debt instruments, 26 U.S.C. § 1272, "dealer" property, 26 U.S.C. § 475, certain foreign currency contracts, 26 U.S.C. § 988.

By contrast, modern financial options typically are written on fungible property, which means that information about the true value of the option is readily available.[25] Unlike Blackacre and Whiteacre, there is no material difference between an option on share A of IBM stock and one with the same terms on share B because there is no difference in the shares. Consequently, the economic characteristics of the derivative financial option are readily ascertainable, and worries about mistaxation if valuation occurs on the option purchase date are largely absent.

These two general phenomena—the failure of the tax law to reach appropriate rules for the taxation of financial options and the collapse of the practical justifications for applying the open transaction doctrine to such options—indicate that much is to be gained from an analysis of financial options that can disclose their actual economics and explicate how a realization-based income tax should apply to them. This Article seeks to accomplish these goals through an application of standard and well-understood concepts in the tax law, informed by the Black-Scholes model of option pricing. The primary focus here is so-called "covered options," or options in which one of the parties owns the property that is subject to the option. However, the analysis also has ramifications for the tax analysis of options that are mere bilateral contracts because the payout structure of such contracts is the same as that of a covered option. Consequently, the two types of transactions often are close substitutes for each other. To give a sense of the tax stakes involved, consider that millions of options contracts having a combined value of several billions of dollars are traded daily in the United States alone.[26]

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[22] *See, e.g.*, E. ALLAN FARNSWORTH, CONTRACTS 175-79 (4th ed. 2004).

[23] *See id.*

[24] *See generally* ROBERT F. BRUNER, APPLIED MERGERS & ACQUISITIONS 425 (2004).

[25] Thomas A. Smith, *The Efficient Norm for Corporate Law: A Neotraditional Interpretation of Fiduciary Duty*, 98 MICH. L. REV. 214, 258-59 (1999).

Under the analysis developed here, the purchase of an option is properly viewed as consisting of the cashing out of a possible gain or loss, together with (in the case of "in the money" options) a forward property transaction, where the term *property* is understood in its standard tax sense of ownership of the economic benefits and correlative burdens associated with an asset or part of an asset.[27] Critically, this analysis applies equally to put and call options, despite the apparent incongruity of treating the off-loading of risk in the case of the purchase of a put option as a property disposition. The basic teaching is that true "option" arrangements arise only to the extent that options are exchanges of fixed for uncertain returns or risks. The balance of any option transaction—that is, the portion that is "in the money" on the option sale date—is a property transaction. In this transaction, the opportunity for gain and the risk of loss that straddle the expected value of the underlier on the exercise date are transferred to the party that would formally purchase the underlier (or its equivalent) on exercise. The fact that in the money options constitute transfers of risks and correlative burdens explains how options shade into simple forward contracts as they move deeper into the money on the option sale date.

So understood, it becomes possible to formulate rules for the taxation of options that respect the lines that exist between the types of returns options generate. On one hand, out-of-the-money options are closely akin to the purchase of a service that should be taxed as ordinary income to the option writer, but on the other hand, certain options have property disposition-like characteristics. Without an understanding of how the risk-shifting part of any option shades into the property-shifting part of some options, it has not been possible to formulate tax rules that are consistent with both of these aspects of options. Further, the understanding of options developed in this Article makes it possible to devise rules that are consistent with principles that have long operated in the tax system, particularly the following two: 1) that the taxpayer does not realize the gain or loss associated with an asset until the asset is disposed of (known as the "realization rule"), and 2) that capital income is taxed differently from ordinary income.[28] While the analysis here does not decisively point to any particular tax regime for options, it suggests that certain approaches will be more effective and appropriate than others, and it illustrates the extent to which differing approaches involve, and do not involve, legitimate trade-offs. The analysis also helps to explain the flaws in the current law as well as the strengths and weaknesses of others' suggestions for the taxation of options.

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[26] In 2008, nearly 1.2 billion options having a total cash value of nearly $1 trillion were traded on the Chicago Board Options Exchange. *See* Chicago Board Options Exchange, CBOE 2008 Market Statistics, at 1, *available at* http://www.cboe.com/Data/marketstats-2008.pdf (last visited Aug. 27, 2010).

[27] *See* Grodt & McKay Realty, Inc. v. Comm'r, 77 T.C. 1221, 1243-45 (1981).

The approach developed here has eluded commentators because they typically have not focused on the entire stream of payments in an option transaction. Instead, commentators have tended to separate the option purchase from the option payout (or lapse), focusing on the rights delivered on exercise of the option separately from those involved in the payment of the option premium itself. Stated otherwise, they have let the optics of option transactions drive their analyses. However, once the total sequence of payments in an option transaction is taken into account, the property transaction inherent in any in the money option becomes manifest. The portion, if any, of the option premium that is economically attributable to the in the money aspect of the option is nothing more than a shift in the timing of the payouts from ownership of a part of the underlier.

Part II reviews the basic law for the taxation of options. Part III offers a novel analysis that aspires both to explain the economics of an option transaction and to clarify the ways in which options are similar to, but distinct from, the various instruments and arrangements to which others have compared them. The analysis in Part III relies heavily on the Black-Scholes option pricing model, but it elaborates significantly on the model in its explanation of the on-the-ground facts that correspond to the results produced under the model. Part IV sets forth possible tax rules for options in light of the economic analysis of options developed in Part III.

II. OPTION BASICS

A. *Options Generally*

Options come in two basic forms.[29] A call option, or "call," gives the owner of the option the right but not the obligation to purchase a given item of property at a given price on one or more dates in the future. A put option, or "put," gives the owner the right but not the obligation to sell a given item of property at a given price on one or more dates in the future. In standard parlance, a call option is said to be "in the money" ("ITM") at any time that the fair market value of the underlier exceeds the option exercise price; "at the money" ("ATM") if the fair market value equals the exercise price; and "out of the money" ("OTM") at any time that the fair market value is less than the exercise price. Similarly, a put is ITM if the value of the underlier is less than the exercise price, ATM if the values are equal, and OTM otherwise. Thus, an option will not be exercised if it is OTM on the exercise date.

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[28] *See* 26 U.S.C. § 1(h) (2006) (discussing favorable rates for long-term capital gain of individuals); 26 U.S.C. § 1001 (discussing gain or loss on property generally taxed when realized).

[29] *See generally* HULL, *supra* note 1, at 179-84.

The following example demonstrates these concepts.

> **Simple call option**: On Day 1, A pays $Y to B in exchange for an option to purchase 100 shares of XYZ Company stock from B at $X on Day 2, one year later.

If the fair market value of 100 shares of XYZ stock on Day 2 exceeds $X, the option will be ITM, and A will exercise the option; otherwise, the option will lapse unexercised.[30] If the option provided A the right to sell, rather than to buy, 100 shares of XYZ stock, the option would be a put and A would exercise only if the fair market value of the XYZ stock were not greater than $X on Day 2.

Options that may be exercised on just one date are referred to as European options, while options exercisable on more than one date are referred to as American options.[31] Options also may be either physically settled or cash settled. A physically settled option requires the purchase or sale of the underlier to occur if the option is exercised, while a cash settled option is exercised through the option writer's transfer of the net option value to the option holder on the exercise date. In the previous examples, a physical settlement of either option would require the option holder to tender, in the case of the call, $X to the option writer on Day 2 in order to receive the stock, or in the case of the put, the underlying XYZ stock in order to receive $X. If, by contrast, the options were cash-settled, then the holder of the option would be entitled to a cash payment equal to the difference between the fair market value of the stock and $X in the case of the call, or between $X and the fair market value of the stock in the case of the put. Thus, as contrasted with a physically settled option, neither party to a cash settled option need own the underlier at any time. Where the underliers are fungible, publicly traded property such as publicly traded stock, commodities, or futures, the difference between cash and physical settlement often approaches nil.[32]

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[30] For ease of exposition. I disregard the case where the option is ATM on the exercise date. In that case, it is a matter of indifference whether the option is exercised or not.

[31] HULL, *supra* note 1, at 179-81.

Lastly, options may be contingent in the sense that some condition beyond the option's being ITM on the exercise date must be satisfied in order for the option to be exercisable. In a now common product known as a credit default swap (a "CDS"), the writer of the swap may promise to pay for the decline in value of an underlier on one or more dates, but only when the decline is due to some factor other than changes to general market conditions.[33] In economic terms, a CDS of this type is economically equivalent to a contingent put option. Most forms of insurance also are economically equivalent to contingent put options, as long as the purchaser of the insurance has an insurable interest in the underlier.[34]

B. Tax Rules

A welter of rules governs the taxation of options. Some of the rules are statutory, some are administrative, and some derive from decisional law.

1. Options Not Subject to Special Rules

The open transaction doctrine applies to options not subject to a special statutory regime.[35] The doctrine itself dates from the 1931 Supreme Court case *Burnet v. Logan*,[36] which did not deal with options but with contingent payment rights. In *Logan*, the taxpayer sold an interest in a mining company and received payment in the form of cash plus rights to a percentage of future mine earnings over an indefinite period. The Court held that the taxpayer was entitled to recover her basis in the property sold before reporting any of the payment for her mining stock as gain from the transaction because the uncertainty inherent in the timing and amount of future payouts made taxation inappropriate, given that the consequences of the sale would be determined with certainty in subsequent periods.

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[32] Even where the option is on a commodity such as wheat, physical settlement commonly occurs in connection with the separate transfer of the underlier to a person in the trade or business of selling the underlier. *Id.* at 10.

[33] As its name implies, the associated trigger is generally a default of some kind by the issuer on the reference obligation, or else some similar event such as a downgrade in the creditworthiness of the issuer of the underlier. *See* Roberto Blanco et al., *An Empirical Analysis of the Dynamic Relation Between Investment-Grade Bonds and Credit Default Swaps*, 60 J. FIN. 2255, 2256 (2005).

[34] As a simple example, homeowner's insurance is equivalent to a put option on the home with a strike price equal to the fair market value of the home (or its insured amount, whichever is less) where the decline in value is due to certain events, such as a fire or a flood. True insurance relationships also generally require the option holder to have an insurable interest in the underlier. Bertram Harnett & John V. Thornton, *Insurable Interest in Property: A Socio-Economic Reevaluation of a Legal Concept*, 48 COLUM. L. REV. 1162, 1162-63 (1948).

[35] *See* Va. Iron Coal & Coke Co. v. Comm'r, 99 F.2d 919, 921-22 (4th Cir. 1938).

[36] Burnet v. Logan, 283 U.S. 404, 413-14 (1931).

In *Virginia Iron Coal & Coke Co. v. Commissioner*,[37] the open transaction rule was extended to options at the behest of the government. The taxpayer received payments over a three-year period for an option it had sold to a third party that provided the third party the right to purchase stock or mineral lands. When the option holder let the option lapse in 1934, the taxpayer filed amended returns for the years in which it had received payments, treating the amounts received as ordinary income in those years.[38] The government argued, and the court agreed, that the open transaction doctrine applied because at the time the payments were received "it was impossible to determine whether they were taxable or not" and, because the nature of option payments received in a particular year might first become ascertainable after the statute of limitations had closed for that year, only a rule that the taxable event occurred in the year of lapse or exercise would be administrable.[39]

Although the problem of uncertainty lingering beyond the statute of limitations motivated the decision in *Virginia Iron*, the kind of uncertainty that commonly has been considered to justify application of the open transaction doctrine is that of character of the option premium.[40] If the option purchaser exercises its right to buy or sell under the option, a transfer of property will occur, and it would seem that the tax consequences attending a property disposition should also apply to the option sale. That is, the two transactions together appear to constitute a single property disposition and should be so treated for tax purposes.[41] If, however, the option goes unexercised, then at least in a formal sense no property changes hands, and the tax consequences of the option sale would seem to differ too, assuming that the tax consequences of nonproperty transactions generally differ from those of property transactions. Accordingly, because it is not possible to get the "right" answer with any certainty on the option sale date, it is better to hold the transaction open – that is, to wait and see.[42]

Although subsequent developments, both administrative and legislative, have substantially narrowed the scope of application of the open transaction doctrine,[43] the doctrine's basic rationale—

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[37] 99 F.2d at 921.

[38] *Id.* at 919-21.

[39] *Id.* at 921-22.

[40] *See* Rev. Rul. 78-182, 1978-1 C.B. 265.

[41] *Id.*

[42] *See Burnet*, 283 U.S. at 413, (articulating the justification for the open transaction doctrine, albeit in a nonoption setting);*Va. Iron Coal & Coke Co.,* 99 F.2d at 919 (extending the rationale to options).

[43] *See, e.g.,* Temp. Reg. § 15A.453-1(d)(2)(iii).

uncertainty in the tax consequences of a transaction in the taxable period—continues to serve as the basis for the tax treatment of most options.[44] Accordingly, under current practice for options not subject to special rules, receipt of the option premium is a nontaxable event.[45] If the option is exercised, the option writer treats the premium as part of the amount realized in the case of a call and as a reduction in the purchase price in the case of a put. The holder treats the premium symmetrically, adding the premium to basis in the case of a call and subtracting the premium from the amount realized in the case of a put.[46] Under the sample transaction above, on exercise of the call, B would treat $X + $Y as the amount received as payment for the XYZ stock, and A's basis in the stock would be the same amount. If the option were a put, then A's amount realized and B's amount paid would be $X - $Y. The character of any gain or loss recognized is generally the same as that of the underlier in the hands of the seller of the property.[47]

When an option is not exercised, or is disposed of in some way prior to its possible exercise, different rules apply to holders and writers of options. Holders are generally subject to the rules of § 1234(a), which provide that gain or loss to the option holder on disposition (including lapse)[48] of the option has the character as short- or long-term capital that the underlier does or would have in the holder's hands. If, however, the underlier is or would be inventory or not otherwise a capital asset in the holder's hands, gain or loss generally will be ordinary.[49] The same rules apply where the option is cancelled by mutual agreement of the parties (with or without a cancellation payment).[50]

Writers of options are generally subject to the rules of § 1234(b) when the option is not (or not yet) exercised. In the case of an option on stock, securities, or commodities, the disposition, lapse, or cancellation of the option generally will produce short-term capital gain or loss, unless the underlier is not a capital asset in the holder's hands or the option is granted in the ordinary course of the taxpayer's trade or business of granting options, in either of which cases gain or loss is ordinary.[51]

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[44] Rev. Rul. 78-182, 1978-1 C.B. 265.

[45] *Id.*

[46] *Id.*

[47] *Id.*

[48] 26 U.S.C. § 1234(a)(2) (2006).

[49] *See* 26 U.S.C. § 1222 (defining capital gain or loss as gain or loss from the sale or exchange of a capital asset).

[50] 26 U.S.C. § 1234A.

[51] *See* Rev. Rul. 78-182, 1978-1 C.B. 265; 26 U.S.C. § 1234A.

2. *Special Situations*

The rules described above do not apply to a variety of options and persons. Most importantly, under § 475, mark-to-market rules apply to taxpayers who are either (1) dealers in options,[52] or (2) traders in options who elect to have mark-to-market rules apply to income and loss from their option transactions, regardless of the nature of the underlier.[53] Under the mark-to-market rules, dealers and electing traders value, or mark to market, their inventory annually and either pay tax on the net increase in value of the inventory or take a deduction for the net decrease over the previous year. Gain or loss is ordinary in character.[54] In the case of a dealer in options, the mark-to-market regime means that while open transaction treatment still applies when the option is entered into, the tax system will take into account the appreciation or decline in value of the option during the year. Persons in the trade or business of writing options generally treat option premiums as ordinary income, but again subject to deferral under the open transaction doctrine.[55]

The rules described in Section II.B.1 also do not apply in a number of special situations. First, they do not govern options on "section 1256 contracts."[56] Section 1256 contracts comprise a variety of publicly traded financial contracts, most of which are valued on a daily basis by the exchanges on which they are traded.[57] Like options held as inventory or by dealers in securities, section 1256 contracts (some of which are themselves options), and options on them are subject to a mark-to-market regime,[58] but unlike inventory or dealer property, § 1256 mandates that gain and loss on section 1256 contracts be 40% short-term capital and 60% long-term capital in character.[59]

Second, holders of nonexercised put options entered into in connection with certain short sales are subject to § 1233.[60] In a short sale, one party borrows property that it then sells to a purchaser. The seller later "closes out" the short sale by delivering to the lender property identical to the property borrowed. Section 1234(a)(3) provides that the rules of § 1233(c) apply to losses resulting from the nonexercise of put options described in that section. Section 1233(c) in turn states that if the taxpayer acquires a put option to sell property on the same date it acquires the property to which the option, if exercised, will apply, then any loss on the nonexercise of the option is added to the basis of the property so acquired.

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[52] Taxpayers who are dealers in securities may hold securities, including options, as inventory or not. Subject to limited exceptions, if held as inventory, the option is generally subject to inventory accounting. *See* 26 U.S.C. § 475(b) (2006); *see also* 26 U.S.C. § 475(a)(1) (requiring annual fair market valuation of the option). If the option is not held as inventory, essentially the same MTM rules apply. *See* 26 U.S.C. § 475(a)(2).

[53] 26 U.S.C. § 475(f).

[54] *See* 26 U.S.C. § 1221(a)(1) (excluding inventory from the definition of "capital asset" and therefore from capital treatment on sale or exchange).

[55] *See, e.g.*, I.R.S. Priv. Ltr. Rul. 78-46-059 (Aug. 18, 1978) (treating income from option premiums in the case of a person in the trade or business of granting options).

[56] 26 U.S.C. § 1234(c)(1). Certain options are themselves "section 1256 contracts." *See* 26 U.S.C. § 1256(b)(3)-(4). These too, of course, are subject to the general rules of § 1256.

[57] 26 U.S.C. § 1256(g)(4)-(6).

[58] 26 U.S.C. § 1256(a)(1).

[59] 26 U.S.C. § 1256(a)(3).

[60] 26 U.S.C. § 1234(a)(3)(c).

Lastly, the general rules may not apply to situations in which the option is embedded in another instrument or is treated as part of another arrangement. Examples of the first situation include the previously discussed case of an option embedded in an NPC as well as options embedded in contingent payment debt instruments. For these instruments, the option premium is generally accounted for over the term of the instrument on the basis of assumptions about the returns the option will generate. Any disparity between the projections and the actual returns is accounted for either periodically or at term. Examples of explicit integration or quasi-integration regimes include options entered into as hedges,[61] as parts of a straddle,[62] or in connection with a wash sale.[63] In these cases, the tax treatment of the option depends in some way on the treatment of the asset or instrument with which it is associated.

C. Problems in Option Taxation

This Subpart identifies some of the difficulties that options pose to the tax system. The discussion involves variations on the following basic fact pattern:

> Suppose A is the owner of 100 shares of XYZ stock, which does not pay dividends. On Day 1, A and B enter into an option transaction pursuant to which the option, if exercised, will result in the transfer of the XYZ stock to B on Day 2, one year later. The stock is worth $100 on Day 1, and A's adjusted basis in the stock is $10. As of Day 1, A has held the XYZ stock for more than one year. XYZ stock has moderate volatility of 30%. In the case of a call option, A will be the seller of the option and B the buyer, while in the case of a put, these roles will be reversed. At all times, the risk-free rate of return is 10%. Neither A nor B is a trader or dealer in stock or options.

Throughout this discussion, the terms ATM, ITM and OTM are defined relative to the forward price of the underlier on the exercise date, as determined on the option sale date. This usage differs from standard usage, which defines the terms relative to the value of the underlier on the date the determination (as ATM, ITM or OTM) is made. Further, interest is assumed to accrue on a continuously compounded basis rather than periodically. For example, under an assumed rate of 10% compounded continuously, property worth $100 on Day 1 would have a forward price of $110.52 on Day 2, one year later.[64] The assumption of continuous compounding is made to simplify the analysis because the Black-Scholes model of option pricing on which the analysis rests assumes continuous compounding. The analysis here would hold if Black-Scholes were modified to assume periodic compounding, but it is easier to hold Black-Scholes constant and to assume continuous compounding rather than to hold constant the assumption that interest compounds periodically and modify Black-Scholes. Under these parameters, a call option sold on the property on Day 1 having an exercise date of Day 2 would be ATM if the strike price is $110.52, OTM if it is above $110.52, and ITM if it is less than $110.52. For a put option, the ITM and OTM designations would be reversed.

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[61] *See* 26 C.F.R. § 1.446-4.

[62] *See* § 1092.

[63] *See* § 1091.

1. *Basic Call Option*

Consider first an ATM call option that *A* sells to *B*. Since the risk-free rate is 10%, an ATM option will have a strike price of $110.52. It would sell for $11.92.[65] Under the open transaction doctrine, *A* does not take the $11.92 into income on Day 1 but instead waits until something further happens. In the meantime, *A* can invest the premium. While investment earnings would be subject to tax, the exemption of the principal from tax is equivalent to taxing the premium but exempting the yield on it.[66] In other words, it is equivalent to consumption taxation of the premium.[67] The nondeductibility of the premium to *B* may provide some comfort from a tax revenue perspective, but the fact remains that on an individual basis, the parties are not properly taxed.[68] And if the parties are not subject to the same marginal rates, revenue neutrality also is not preserved. This last problem may be particularly acute where *B* is a non-U.S. person not subject to U.S. tax generally.

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[64] The general formula for continuous compounding is: $A = Pe^{rt}$, where A is the amount, P is the initial principal, r is the rate expressed as a decimal, and t is the number of years.

[65] The pricing is based on the Black-Scholes theorem and can be derived using a Black-Scholes pricing calculator, many of which are available online. *See, e.g.*, The Derivatives 'Zine, http://www.margrabe.com/OptionPricing.html (last visited Aug. 27, 2010).

[66] Cary Brown, *Business-Income Taxation and Investment Incentives*, *in* INCOME, EMPLOYMENT, AND PUBLIC POLICY: ESSAYS IN HONOR OF ALVIN H. HANSEN 300, 301 (1948).

[67] Joseph Bankman & David A. Weisbach, *The Superiority of an Ideal Consumption Tax Over an Ideal Income Tax*, 58 STAN. L. REV. 1413 (2006).

[68] One can view the overall arrangement as a kind of surrogate taxation.

The fact that *A* acquires an investment opportunity suggests that there is an exchange in the transaction because parties dealing at arm's length do not exchange value for nothing. The fact that no payment occurs on the option sale date suggests further that the transaction contains a loan of some sort. In short, if parties dealing at arm's length do not provide something for nothing, the investment opportunity that *A* acquires will have been paid for.[69] Therefore, the absence of explicit interest indicates that the price of the option is discounted.[70] *B* pays an amount for the option that reflects the forgone opportunity to earn a return on the premium during the year prior to exercise. Stated otherwise, $11.92 represents the discounted present value of the option premium on Day 2. Under the assumed 10% risk-free rate of return, if the option premium were due on that day (regardless of exercise), *B* would pay $13.17. This analysis suggests that interest should be deemed to accrue on the premium for tax purposes, with a corresponding deduction to *A*.

The failure to tax the interest on the premium is not the only troubling feature of the option sale.[71] Considering the possible outcomes of the transaction, it seems clear that on Day 1, *A* has locked in gain no matter what happens. On that day, *A* receives $11.92. If the option is exercised, *A* will receive an additional $110.52 on Day 2, for a total of $122.44, in exchange for the stock. *A*'s taxable gain will be $112.44. If the option is not exercised, *A* gets to keep the $11.92, again fully taxable, without parting with the stock. It is therefore unclear why *A* should not be taxed in some fashion on the $11.92 on receipt (with, under current law, a corresponding basis adjustment). The justification for open transaction treatment would not seem to apply in this instance, since it is known on Day 1 that there will be income and that under current law it is capital in nature. Although, under current law, it is not known on Day 1 whether the gain will be short-term or long-term,[72] the justification for short-term gain to option writers in the nonexercise case is not that such gain is "inherently" short-term, but that grantors will manipulate the timing of capital gains if the character of the gain depends on the holding period of the underlier.[73] Accordingly, it is unclear why the granting of an option on appreciated property is not taxable on the grant date to the extent of at least the lesser of the appreciation or the option premium, with the character of the gain determined by up-front rule, possibly with adjustment down the road.

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[69] William A. Klein, *Tailor to the Emperor With No Clothes: The Supreme Court's Tax Rules for Deposits and Advance Payments*, 41 UCLA L. REV. 1685, 1695 (1994) ("From an economic perspective there are no interest-free loans, only hidden, or imputed, interest. The hidden interest . . . is always there.").

[70] *See id.*

[71] *See* Johnson, *supra* note 8, at 4-8 (criticizing the failure to tax interest on the premium).

[72] If the option lapses, the premium is considered short-term capital gain under §1234(b). If the option is exercised, it is considered long-term capital gain under §1234(a), given the facts of the discussion example.

2. *Basic Put Option*

Under the facts of the discussion example, the mirror put option would have *A* transferring the $11.92 to *B* on Day 1 in exchange for the right, but not the obligation, to sell *B* the 100 shares of XYZ stock at $110.52 on Day 2.[74] As the grantor of a put, *B* does not own the property subject to the option, so the worry that the receipt of the option premium represents partial payment for the underlier would seem to be misplaced. Again, however, the grantor receives the option premium with no tax consequences, raising questions about whether interest should be imputed to the transaction or the grantor should include the full premium on receipt under a claim of right or prepayment analysis. Claim of right generally requires a taxpayer to include, in income, an amount received that may be subject to a future return, as long as the taxpayer is not subject to restriction.[75] However, if later return is required, the taxpayer typically may take a deduction.[76] Similarly, amounts received as prepayments for future services generally are includible,[77] subject to limited exceptions.[78]

The transaction also has sale elements that would seem to point to possible recognition of gain for *A*. Although *A* does not receive cash, *A* does obtain protection against downside loss because *A* can cash out the stock at any time prior to Day 2 for at least the present discounted value of $110.52 on Day 2. *A* thereby has disposed of risk of loss, one of the primary indicia of ownership.[79] Whether that disposition ought to be sufficient to trigger recognition of gain or loss is less certain. Numerous provisions in the tax law treat the disposition solely of risk of loss as something short of a sale but different from simple ownership, typically by tolling applicable holding periods.[80] By the same token, no provision treats a transfer solely of risk of loss as sufficient to trigger recognition of income.[81] Again, however, the idea that nothing of significance for tax purposes has occurred seems questionable.

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[73] 26 U.S.C. §1234.

[74] As in the case of the call option, the put price is derived using the Black-Scholes option pricing formula. *See supra* note 64-65. Where an option is ATM, the put and call prices are the same on the option sale date.

[75] N. Am. Oil Consol. v. Burnet, 286 U.S. 417, 424 (1932).

[76] *Id.*; *see also* 26 U.S.C. § 1341 (providing deduction or credit choice to taxpayer for certain amounts returned).

[77] 26 C.F.R. § 1.451-1(a) (cash-method taxpayers); Schlude v. Comm'r, 372 U.S. 128 (1963) (discussing accrual-method taxpayers).

[78] *See, e.g.,* Artnell Co. v. Comm'r, 400 F.2d 981 (1968) (holding that deferral for accrual-method taxpayer was allowed where amount and timing of future associated expenses clearly ascertainable at time of receipt); Rev. Proc. 2004-342004-22 IRB 991 (describing one-year deferral for certain prepayments).

[79] *See* Grodt & McKay Realty Inc. v. Comm'r, 77 T.C. 1221, 1237-38 (1981) (identifying risk of economic loss as a primary aspect of tax ownership).

3. *Special Situations*

When an option is subject to a special regime, additional problems arise. These problems are not unique to the option setting but instead result from the inconsistent tax treatment of parties to the same transaction. As an example, a dealer in options may purchase a call from a non-dealer grantor. The dealer does not amortize the premium, but the option is marked to market annually.[82] Consequently, income or loss is registered by just one side of the transaction while it is open. Similarly, and as discussed in the Introduction, taxpayers may take advantage of the different rules that apply to options embedded in notional principal contracts or to options entered into as hedges[83] to obtain a timing or character benefit or to arbitrage a return.

III. SUGGESTED CONCEPTUAL APPROACH

This Part develops an economic analysis of options that explains them in terms of the actual transactions that the parties to an option sale enter into. For purposes of this basic analysis, it is assumed that either the put purchaser or the call writer owns the underlier—that is, the analysis here applies to "covered" options. Subpart A states the theory and Subpart B provides a demonstration. The object is to provide an account of the economic consequences of option sales that illuminates the basic tax issues they raise. These issues are explored in Part IV.

The approach developed here relies on the Black-Scholes model for option pricing, but it does not assume that the model describes what the parties to an option transaction actually do. Rather, it treats Black-Scholes as providing the correct mechanism for the pricing of financial options, recognizing that Black-Scholes itself is an idealized model that has great relevance but not direct application to the real world.[84] Black and Scholes demonstrated how to model the purchase of an option as a combination of borrowing and purchasing or lending and selling fractional parts of the underlier, with continuous adjustment of the initial loan and equity amounts as the determinants of the option price varied over time. The equivalence they established makes possible the accurate valuation of any financial option under idealized terms, and this valuation in turn is instrumental in explaining the actual transactions that parties to an option engage in. The equivalence does not imply, however, that the parties to the transaction should be treated as having engaged in the hypothetical debt and equity transactions that the model posits.[85]

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[80] *See, e.g.*, 26 U.S.C. § 246(c)(4) (holding period for purposes of dividend received deduction is not met during periods in which the taxpayer does not bear the risk of loss of ownership); 26 U.S.C. § 1058(b)(3) (requiring that the owner of securities in a securities lending transaction transfer to the borrower neither the risk of loss nor the opportunity for gain in the securities for the purpose of qualifying for nonrecognition treatment under 26 U.S.C. § 1058(a); 26 U.S.C. § 1059(d)(3) (relying on § 246 rules to toll the holding period for purposes of satisfying the holding period exception to the application of the extraordinary dividend basis and gain rules).

[81] For example, § 1259, which applies to "constructive sales" of "appreciated financial positions," deems a disposition of such a position to occur where, among other things, a transaction has the effect of disposing of the benefits and burdens of ownership. *See* 26 U.S.C. § 1259(c) (listing transactions). In *Woodsam Associates, Inc. v. Commissioner*, 16 T.C. 649, 655 (1951), the court refused to treat the taxpayer's nonrecourse borrowing, in excess of its basis in the property securing the debt, as a disposition of the property.

[82] 26 U.S.C. § 475(a)(2).

[83] 26 C.F.R. § 1.446-4(b) (2010) (requiring taxpayers to match the timing of a hedging transaction with the item hedged in a manner that clearly reflects income).

A. Statement of the Theory

A covered option is properly viewed as a division of the benefits and burdens of ownership of the underlier. To the extent the division is asymmetrical, so that one party assumes risks or acquires benefits of the underlier not associated with correlative benefits or risks of it, the option represents a transfer solely of either risk of loss or opportunity for gain in exchange for payment, typically cash.[86] This feature of options has long been well understood. To the extent the division is symmetrical, so that one party acquires both benefits and correlative burdens of ownership of the underlier, the option represents an on-market forward property disposition. This feature of options has not been well understood. Assuming as a first approximation that there is no premium associated with the assumption of risk, the value of the symmetrical transfer equals the value of a riskless instrument generating the associated interest during the option term.

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[84] The Black-Scholes model makes a number of idealizing assumptions about options, including that volatility of the underlier can be known and that it is constant. The model also applies to simple options on nondividend paying securities, though it has been elaborated in various ways. For a general criticism of Black-Scholes as a model for understanding the pricing of actual options, see Adam H. Rosenzweig, *Imperfect Financial Markets and the Hidden Costs of a Modern Income Tax,* 62 SMU L. REV. 239, 288 (2009) (describing as an "open secret" the fact that Black-Scholes is wrong in assuming constant volatility of the underlier).

[85] In an earlier article, the author suggested rules for the taxation of financial options based on treating the parties as having engaged in the hypothetical transactions that Black and Scholes posit. David Hasen, *A Realization-Based Approach to the Taxation of Financial instruments*, 57 TAX L. REV. 397, 439-40. Eric Chason later provided a similar, though more developed, approach. Chason, *supra* note 8. The present discussion focuses instead on the transactions in which the parties to an option actually engage.

[86] I thank Patrick White for clarification on this point.

As will be seen, under this theory, the point at which what I call the true "optionality" of an option—either the purchase of a fluctuating return or the offloading of a fluctuating risk, in either case in exchange for a fixed fee—reaches its maximum is where the asymmetry between risk-bearing and benefit-reaping is complete. This point occurs for options sold at a strike price that equals the forward price of the underlier on the strike date, in other words, for options sold (in present value terms) at the money. Beyond this point—that is, for options issued in the money—there is simply no more possible offloading solely of risk (put option) or purchase solely of potential benefit (call option) with respect to the underlier. Rather, any additional component of the option sale is simply the forward transfer of a portion of the risk correlative to the potential benefit transferred (call option) or potential benefit correlative to the risk transferred (put option) by the owner of the underlier that would have remained with the owner had the option not been ITM. Because this transfer of correlative risk and potential benefit is a transfer of both opportunity for gain and risk of loss, it is, if not a property transaction, closely akin to one. Further, because the slice is a symmetrical transfer of potential risk and potential benefit, its value on the option sale date is simply the value of a debt instrument that would earn the corresponding time value return during the option period (disregarding, for the moment, the possibility that risk preferences are asymmetrically distributed among market participants).[87]

Viewed along a spectrum running from options sold out of the money, to options sold at the money, to options sold in the money, the following then can be said to occur on the option sale date:

- In the OTM case, *a portion* of either the risk of loss (put option) or the opportunity for benefit (call option) associated with ownership of the underlier is transferred in exchange for a cash payment;
- In the ATM case, *the entirety* of either the risk of loss or the opportunity for benefit associated with ownership of the underlier is transferred in return for a cash payment; and
- In the ITM case, *a portion* of either the risk of loss or the opportunity for benefit associated with ownership of the underlier is transferred in return for a cash payment, just as in the OTM case, *together with* a forward disposition of symmetrical portions of the benefits and burdens of ownership of the underlier. Because possession of the opportunity for benefit together with the correlative risk of loss is typically

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[87] *See infra* Part II.B.2.

> paradigmatic of tax ownership,[88] this associated transfer can be considered a forward property transfer.

In short, an ITM option differs from the corresponding OTM option not by having more "optionality," but in that the ITM option has an associated property transfer that actually reduces the optionality as compared with an ATM option. This analysis explains how options shade into forward contracts—the greater the extent to which the option is ITM on the option sale date, the more the option sale constitutes a symmetrical transfer of benefits and burdens. At the limit, where the strike price is zero, all benefits and burdens have been transferred on the option sale date. An option with a zero strike price is a forward sale of the underlier.[89]

Diagram 1 illustrates these ideas. It contains four pictograms. In each, the horizontal axis represents the fair market value of the underlier on the exercise date, and the vertical axis represents the extent of risk and benefit retained or disposed of on that date; A and B are the parties to the option transaction, except in the first pictogram. For ease of exposition, the risk-free rate at all times is assumed to be zero and the risk preferences of market participants are disregarded.

The first pictogram represents A's simple ownership of the underlier. A retains, by definition, all risk of loss and all opportunity for gain, represented by the arrows going down to zero and up infinitely.

The second pictogram illustrates the effect of A's sale of a call option to B having a strike price of S_1. B has acquired the upside potential in excess of S_1, while A has retained upside potential to that point as well as all the downside risk of underlier. Since S_1 exceeds the FMV on the exercise date, the option is OTM. Note that the option purchaser bears no risk of loss as measured on the option sale date.

The third pictogram represents A's sale of an ATM call option having a strike price, S_2, equal to the underlier's FMV. Here the optionality—the separation of the opportunity for gain from the risk of loss—reaches its maximum. B is entitled to all opportunity for benefit and bears no risk of loss, all of which A retains. Under the theory described above, the option premium paid is at its maximum for this option, even though ITM options would have higher nominal premiums. Therefore, although an ITM option, as represented in the fourth pictogram showing an option with a strike price equal to S_3, will have a higher nominal option premium than the premium for the option having the ATM strike price of S_2, the higher premium will be made up for in the stream of future payments under the option. That is, the timing of payouts under the S_3 option hides the fact that the true swap of fluctuating for nonfluctuating payments is the same as it is under the S_1 option and therefore lower than it is under the S_2 option. The optionality pieces of the S_1 and S_3 transactions—that is, the portions that represent the transfer of fluctuating benefits for cash—are the same and are smaller than the optionality piece under the ATM option (S_2).

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[88] Grodt & McKay Realty, Inc. v. Comm'r, 77 T.C. 1221,1243-44 (1981).

[89] *See* David F. Levy, *Disparities in Tax 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, 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.").

The fact that the optionality pieces are the same for the depicted OTM and ITM options does not mean that the two options are the same. It means only that the way in which they differ has to do with what else is transferred in the ITM case. In an OTM option, all that occurs is an exchange of a fixed payment for either the right to a portion of fluctuating upside returns (in a call) or the off-loading of a portion of fluctuating downside risk (in a put). In the corresponding ITM option, that same exchange occurs, but there is, in addition, an on-market forward transfer of a symmetrical portion of the opportunity for gain and the risk of loss of the underlier. This portion is represented in the fourth pictogram by the dual-pointing arrow that crosses the FMV line. As contrasted with the swap of benefit (or risk in the case of a put) for cash that characterizes the optionality piece, the only net consideration that travels in the other direction is the interest that would be earned on the transfer because the owner of the underlier transfers a risk that exactly offsets, in expected value, the benefit that is also transferred. Diagram 2 summarizes these points.

Diagram 1: Simple Ownership and Three Types of Option Transfers

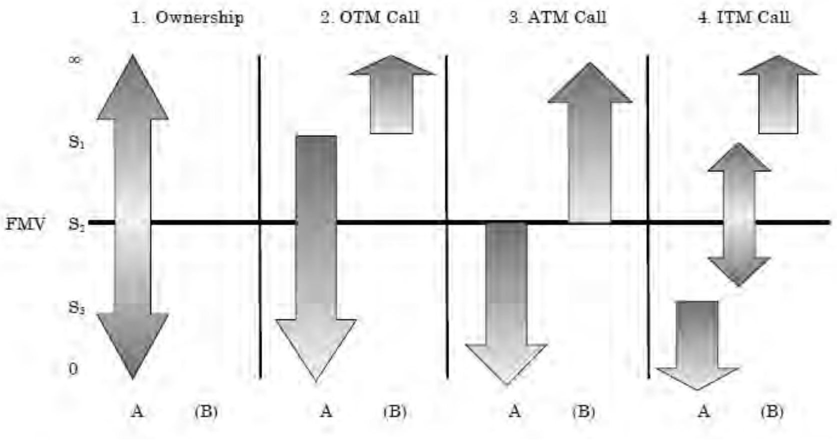
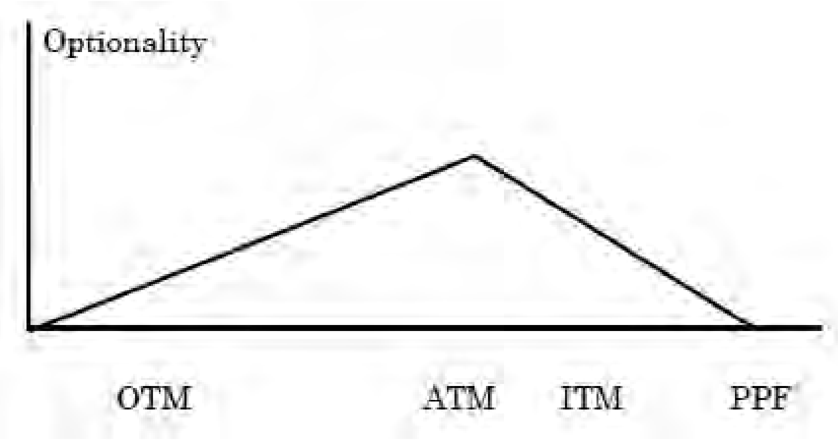


Diagram 2: Extent of Optionality



The obvious objection to this view is that if the option writer in an ITM option is considered to be absorbing less risk for cash (in the case of a put) or parting with less potential benefit for cash (in the case of a call) than is the writer of an ATM option, and if the related property transaction under an ITM option is not cashed out until the exercise date (whether or not exercise occurs), then the price for an ATM option should exceed the price of both an OTM option and an ITM option, other things being equal. In fact, of course, the option price continues to rise as the negotiated terms of the option go farther into the money on the option sale date. For instance, if an OTM option costs $X on the option sale date, an ATM option having otherwise identical terms will cost more than $X on that date and an ITM option will cost still more. The price structure of options seems to suggest that the true optionality increases continuously from deep OTM, through ATM, to deep ITM.

In fact, the price structure is misleading. The higher price for ITM options reflects nothing more than a payment scheduling arrangement. The price increase for the option premium attributable to the option's having an ITM strike price is precisely made up for in the payout structure under the option. Viewed as a whole, the portion of the overall ITM option sale that represents an asymmetrical exchange of risky returns for nonrisky returns, or what I call the true option piece of an ITM option, is smaller and therefore costs less than an ATM option by precisely the amount of the associated property disposition. The pure option piece of an ITM option, that is, the portion of the option premium received in exchange for absorbing risk (put) or providing opportunity for gain (call), has the same cost as the identical OTM option.

These considerations indicate that the property disposition portion of an ITM option is actually the mirror image of another common transaction, known as a "collar." In a collar, the owner of property disposes of the potential upside benefit above a certain price as well as the risk of loss below a certain price, retaining opportunity for gain and risk of loss in-between.[90] For example, *A* may own XYZ stock having a current fair market value of $100. If *A* sells a call at $110 and buys a put at $90, *A* retains the opportunity for gain and risk of loss within the $90 to $110 band but has disposed of the remaining opportunity and risk. In the property disposition portion of a mirror ITM option, the property owner would retain the opportunity for gain above $110 and the risk of loss below $90 but dispose of the opportunity and risk in-between. The only difference between this retention and an actual ITM option is that the on-market property disposition in the ITM option is married to an OTM option, so that either the remaining downside risk (in the case of a put) or the remaining upside potential (in the case of a call) accompanies the symmetrical disposition of opportunity and risk. This additional transfer also serves to obscure the forward property disposition that occurs in the ITM portion of an ITM option.

B. *Demonstration*

The following illustrations convey these ideas in a series of steps. In Section 1, the assumed risk-free rate is zero and parties' risk preferences are disregarded. These assumptions are made to illustrate the basic nature of option transactions, and they are relaxed in Section 2. In addition, the discussion does not begin with an option, but with the type of nonoption property disposition that occurs in an ITM option. True option arrangements are then added (i.e., exchanges, for cash, of risk of loss or opportunity for benefit), showing that the resulting transactions are identical to options observed in the marketplace.

Throughout this Subpart: (1) Owner is the owner of Underlier, a piece of fungible property worth $100 on the option sale date; and (2) Purchaser agrees on the option sale date to purchase some or all of the property from Owner, to engage in related transactions on the exercise date, or both.

1. *Risk Neutrality and Zero Risk-Free Rate*

In this Section, the risk-free rate of return is assumed to be 0% and risk preferences are assumed to be neutrally distributed among market participants, meaning that no one pays a premium to assume risk or to shed it.

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[90] *See, e.g.*, 26 C.F.R. § 1.446-3(f)(2)(v) (2010) (prescribing the tax treatment of collars embedded in a notional principal contract).

a. Neutral Disposition of Upside Potential and Downside Risk

Consider first a basic forward transfer of the opportunity for gain and the risk of loss on a portion of Underlier.

> **Transaction 1: On-market division.** On Day 1, Owner sells Purchaser the first 25% of the upside potential and Purchaser agrees to assume the first 25% of the downside risk in the price of Underlier as measured on Day 2, one year later.

In Transaction 1, the only transfer that occurs on Day 1 is of the risks and benefits associated with the 25% disposition. Because the interest rate is zero, Purchaser will pay nothing to Owner on Day 1. (If on Day 1 Purchaser wished to acquire the 25% interest on Day 2, Purchaser could also promise on Day 1 to pay, on Day 2, 25% of the value of Underlier as measured on Day 1. Of course, in the financial instruments context, either party is indifferent between ownership of the market value of a property right and the property right itself.) The parties could effect Transaction 1 by entering into (1) a forward sale of Underlier on Day 1 for $100 with a settlement date of Day 2, (2) Purchaser's sale to Owner of a call on Underlier with a strike price equal to $100 plus the appreciation up to the first 25% of expected upside benefit as measured on Day 2 and a strike date of Day 2, and (3) Owner's sale to Purchaser of a put with a strike price equal to $100 less the decline up to the first 25% of expected downside risk as measured on Day 2 and a strike date of Day 2. The values of (2) and (3), by hypothesis, are equal and offsetting. Further, since the parties are willing to cash-settle Transaction 1, they could do so simply by agreeing, instead of to transactions (1) through (3), that on Day 2 Owner would pay Purchaser the actual appreciation, if any, up to the amount representing the first 25% of the potential upside benefit in Underlier as measured on Day 1. Purchaser would then pay Owner the actual decline in value, if any, up to the amount representing the first 25% of the potential downside risk, also as measured on Day 1.

The range of values that corresponds to the first 25% of the opportunity for benefit and risk of loss in Underlier can be computed using the familiar Black-Scholes option pricing theorem. This is done by setting the put and call option premiums equal to 75% of the price of an ATM option (put or call) as measured on Day 2 and deriving the associated option strike prices. In dollar terms, this range will be asymmetrical around the Day 2 forward price (as measured on Day 1), or $100, because on Day 2 Underlier can assume any positive value but no negative value.[91] Assuming moderate volatility of 10%, the range is $102.27 to $97.94.[92] Thus, Owner will pay Purchaser the excess, if any, of the value on Day 2 of Underlier over $100, up to $102.27, and Purchaser will pay Owner the excess, if any, of $100 over the value on Day 2 of Underlier, down to $97.94.

b. *Neutral Disposition Plus OTM Put Option*

Now suppose that in addition to Transaction 1, Purchaser agrees on Day 1 to pay the drop in value, if any, of Underlier below $97.94, as measured on Day 2.

> **Transaction 2: Division plus put option.** The facts are the same as in Transaction 1, but Purchaser also agrees to pay the excess, if any, of $97.94 over the FMV of Underlier on Day 2. Owner transfers $3.00 to Purchaser on Day 1. The parties agree to cash-settle on Day 2.

Note that Transaction 2 differs from Transaction 1 solely in that it adds Purchaser's sale of an OTM put to Owner with a strike price of $97.94. The put option part of Transaction 2 is the transfer of risk with respect to possible declines below $97.49. Under the same assumptions about Underlier as apply in Transaction 1, the put value under the Black-Scholes formula is $3.00.

On Day 2, the following outcomes are possible in Transaction 2:

1. FMV of Underlier equals or exceeds $102.27: Owner pays Purchaser $2.27.
2. FMV of Underlier is between $100 and $102.27: Owner pays Purchaser the excess of the FMV over $100.
3. FMV of Underlier is less than $100: Purchaser pays Owner the difference between $100 and the FMV.[93]

The critical point to recognize is that the precise economic arrangement that Transaction 2 effects can be replicated under a number of different payment schedules. Owner can pay less or more up front in exchange for more or less payment on Day 2, as long as interest is appropriately accounted for. (And since, under the simplified assumptions here, the interest rate is zero, there is no discounting effect from prepayment.) In particular, suppose the parties wanted to ensure that Owner's only payment to Purchaser occurs on Day 1. They could agree to the following:

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[91] The Black-Scholes theorem accounts for this asymmetry through the assumption that returns are log-normally rather than normally distributed about the forward price. *See* HULL, *supra* note 1, at 277-79.

[92] These figures represent the strike prices of a call priced at $3 and a put priced at $3 when an ATM (whether put or call) is priced at $4. The analysis would not change if the volatility were different, though the range of prices would change.

[93] That is, Purchaser pays up to $2.06 under the piece of Transaction 2 that Transaction 1 represents, and Purchaser pays the excess, if any, of $97.94 over the FMV of Underlier on Day 2, which is Purchaser's obligation under the put part of Transaction 2. This sum is the same as what is stated in the text.

> **Transaction 3: Division plus option plus prepayment.** Same as Transaction 2, but Owner pays an additional $2.27 to Purchaser on Day 1, for a total of $5.27, and receives an additional $2.27 under each payout scenario. The parties agree to cash-settle on Day 2.

The payouts of Transaction 3 on Day 2 are as follows:

1. FMV of Underlier equals or exceeds $102.27: No payments.
2. FMV of Underlier is less than $102.27: Purchaser pays Owner difference between $102.27 and FMV.

The net value of Transaction 3 is exactly the same as that of Transaction 2 because all that has happened is that $2.27 more has been paid to Purchaser up front and, in each case, the same $2.27 has been subtracted from Purchaser's payout or added to Purchaser's payment obligation on Day 2. Because the discount rate is assumed to be 0% in this pattern, the present value on Day 1 of $2.27 on Day 2 is $2.27.

Note, however, that Transaction 3 has exactly the same payout structure as an ITM put option.

> **Transaction 4: ITM put option.** Owner pays Purchaser $5.27 on Day 1 in exchange for the right to sell Underlier to Purchaser on Day 2 for $102.27. The parties cash-settle the obligation on Day 2.

It is in fact the case that under the same Black-Scholes pricing model that produced the price of $3.00 for an OTM put with a strike price of $97.94, the price of a $102.27 put option for Underlier on these terms is $5.27. In other words, this ITM put is the same as an OTM put plus the associated property transfer described in Transaction 1. As explained above, this result should not be surprising because it is not possible for the option writer to provide more price protection with respect to the underlier than is available under an ATM option.[94]

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[94] The statement should be qualified because the parties could enter into an arrangement in which the option writer agrees to overcompensate the option holder for a drop in price (or, for that matter, to supplement an increase in price). For example, the parties to a put option could provide that the option writer would pay the option holder 1.5 times the drop in price, if any, prior to exercise. Such a transaction would in effect mimic the option holder's purchase of an additional interest in the underlier, together with more

The preceding discussion suggests the following points:

- An ATM option represents nothing more than the complete separation of the benefits and burdens of ownership of the underlier between the parties to the option transaction.

- An OTM option is the same as an ATM option, except that it is a separation of a smaller percentage of the total benefits and burdens.

- An ITM option is the same as an OTM option plus the on-market forward sale of a portion of the benefits and correlative burdens of ownership of the underlier. That is, in an ITM option, some of the exchange of fluctuating returns (call) or risks (put) for fixed consideration that would otherwise be supplied in an ATM option is replaced by a correlative transfer of the risks (call) or fluctuating returns (put) of some of the underlier, and the balance is an OTM option transaction. The transfer of fluctuating returns and correlative risks is a transfer of ownership. On the facts above, the swap of variable risk for cash in the ITM put option—that is, the true option piece—is the same as the swap provided under the OTM put having a strike price of $97.94.

    o To the extent the ITM option involves the symmetrical transfer of risks and benefits about the FMV expected on the strike date, it is the mirror image of a collar. In a collar, one party retains the risks and benefits over a range of values straddling the FMV and disposes of the benefits above that range and the risks below it. A party creates a collar by writing a call at the above-market price and purchasing a put at the below-market price. In general, the put and call prices are the same if the percentages of risk and benefit disposed of are the same.

    The ITM portion of an ITM option is the mirror image of a collar in that the purchaser of the collar retains the value straddling the FMV on the strike date and disposes of the tails of the distribution, while the call seller or put purchaser sells the straddling portion and retains the tails.

- The fact that an ITM option costs more than an OTM or ATM option reflects nothing more than a payment arrange-

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price protection. I omit consideration of such arrangements here, as they are not observed in the market (as far as I am aware). Further, the same basic analysis would apply, though with more complexity.

> ment between the parties; no additional consideration is exchanged for the ITM portion apart from interest or a risk premium.

c. *Extension to Call Option*

A call option differs from a put in that the writer disposes of upside potential instead of assuming downside risk. The net effect, however, is the same: the option sale effects an asymmetrical distribution of risks and benefits in the underlier so that the writer possesses risks not associated with offsetting benefits. As in the case of a put, the maximum optionality occurs when the option writer ends up with all downside risk and the option holder has all the upside potential—namely, an ATM call. When the option is OTM on the option sale date, there is less potential benefit transferred and, correspondingly, a lower option price. Where the option is ITM on the option sale date, there is a greater option price than in the ATM case, but only because a part of the price represents the same type of forward transfer that arises in the case of a put—that is, a disposition of a symmetrical portion of the burdens and benefits of the underlier.

The following examples, which use the same assumptions as in the case of the put, illustrate these points. First, recall Transaction 1: On-market division. On Day 1, Owner sells Purchaser the first 25% of the upside potential and Purchaser agrees to assume the first 25% of the downside potential in Underlier between Day 1 and Day 2, one year thereafter.

It was shown that the price range corresponding to the first 25% of the benefits and burdens is $102.27 to $97.94. Thus, if the parties cash-settle, then on Day 2, Owner pays Purchaser the excess, if any, of the difference between Underlier's FMV and $100, up to $2.27. At the same time, Purchaser pays the excess, if any, of the difference between $100 and Underlier's FMV, up to $2.06.

Additionally, the parties could effect Transaction 1 with a different schedule of payments. In the case of a call option, Owner writes the option, so the parties can arrange for a single payment by having Purchaser rather than Owner prepay.

> **Transaction 1a: On-market division with prepayment.** Same as Transaction 1, except that on Day 1, Purchaser pays Owner $2.06, and on Day 2 Owner will net a $2.06 payment to Purchaser with whatever other payment is required on that day to effect the transfer of the first 25% of upside potential and downside risk.

The only difference between Transactions 1 and 1a is that the parties have rearranged the timing of their payments. In Transaction 1a, on Day 2, Owner pays Purchaser the excess, if any, of the difference between Underlier's FMV and $97.94, up to $102.27.

Finally, suppose that the parties engage in the following transaction, in addition to Transaction 1a.

> **Transaction 5: OTM call.** On Day 1, Owner separately sells an OTM call to Purchaser with a strike price of $102.27, exercisable on Day 2, in one year.

The price of the call is $3.00. Assume again that all transactions are cash-settled. As in the put option case, the payouts under the combination of Transaction 1a and Transaction 5 are the same as under Owner's simple sale of an ITM call to Purchaser with a strike price of $97.94. Moreover, Purchaser's combined payment on Day 1 of $5.06 is the same as the Black-Scholes price for this ITM call.[95]

2. *Positive Risk-Free Rate*

This Section extends the analysis of Section 1 to the more realistic setting in which the risk-free rate of return is positive. In this context, the transfer of funds gives rise to an interest payment for the use of money, whether or not the interest payment is expressly broken out. Consequently, in addition to the exchange of risky returns for a fixed payment and, in the case of an ITM option, the transfer of beneficial ownership of a portion of the underlier, there also will be interest paid in the transaction. If the analysis under the zero risk-free rate holds, the same results should follow as before, except that this interest piece should be present as well.

All assumptions in this Section are the same as in Section 1, except that the hypothetical risk-free rate is 10% and it is compounded continuously.

a. *Neutral Disposition of Upside Potential and Downside Risk*

Consider again a basic forward transfer of equal and offsetting opportunity for gain and risk of loss on Underlier.

> **Transaction 6: On-market division.** On Day 1, Owner sells Purchaser the first 25% of the upside potential and Purchaser agrees to assume the first 25% of the downside risk in the price of Underlier as measured on and Day 2, one year thereafter.

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[95] The cost of the option is $5.06, rather than $5.27 in the case of a put, because the cost of offloading the first 25% of the downside potential is $2.06, while the cost of purchasing the first 25% of upside is $2.27. This difference reflects the fact that in an option, the minimum value the underlier can take on the exercise date is 0, while there is in principle no maximum value, and in the call case the payment goes in the other direction. *See generally* HULL, *supra* note 1, at 277-79.

At a continuously compounded rate of 10%, the expected value of Underlier on Day 2 is $110.52,[96] and the price of either a call or a put with that strike price would, as in the case of a zero risk-free rate, be $4. Analogously, an on-market disposition of the first 25% of potential upside gain and the first 25% of downside risk would correspond to a range of values for Underlier on Day 2 bounded by the strike prices for a call and a put each having a cost of $3.00. This range is $108.24 as the strike price for the put to $113.02 as the strike price for the call. The only difference between this case and the zero risk-free rate case is that the range over which payments will be made on Day 2 has shifted up and expanded by the amount of interest expected.[97] If on Day 2 Underlier has appreciated, Owner pays Purchaser the lesser of $2.50 (equal to $113.02 less $110.52) or the difference between Underlier's FMV on Day 2 and $110.52. If on Day 2 Underlier has declined in value, Purchaser pays Owner the lesser of $2.28 (equal to $110.52 less $108.24) or the difference between $110.52 and Underlier's FMV on Day 2.

b. Neutral Disposition Plus OTM Put Option

The same ITM put option that was replicated through the combination of an OTM put and a neutral on-market division when the risk-free rate was assumed to be zero looks as follows under a 10% rate:

> **Transaction 7: Division plus OTM put option.** Same as Transaction 6, but Purchaser also agrees to pay the excess, if any, of $108.24 over the FMV of Underlier on Day 2. Owner transfers $3.00 to Purchaser on Day 1. The parties agree to cash-settle on Day 2.

The payout structure under this combination is as follows:

1. FMV of Underlier equals or exceeds $113.02: Owner pays Purchaser $2.50.
2. FMV of Underlier is between $113.02 and $110.52: Owner pays Purchaser the excess of the FMV over $110.52.
3. FMV of Underlier is less than $110.52: Purchaser pays Owner the difference between $110.52 and the FMV.[98]

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[96] The formula for continuous compounding is FV = Pe^{Yr}, where *FV* is future value, *e* is the base of the natural logarithm, *Y* is the number of years to maturity and *r* is the interest rate expressed as a decimal.

[97] Thus, the spread between $97.96 and $102.27 is $4.33. The $4.33 invested at 10% with continuous compounding for one year is $4.78, which is the difference between $113.02 and $108.24, the spread on Day 2 in Transaction 6.

[98] That is, Purchaser pays up to $2.28 under the piece of Transaction 7 that Transaction 6 represents, and Purchaser pays the excess, if any, of $108.24 over the FMV of Underlier on Day 2, which is Purchaser's obligation under the OTM put portion of Transaction 7.

As before, this transaction can be replicated under a payment schedule that is front-loaded so that Owner pays Purchaser just once, on Day 1, with no change to the underlying economics. As in the zero risk-free rate case, this adjustment requires that the maximum amount Owner may be required to pay on Day 2 under Transaction 7 be incorporated into the payments on Day 1. The difference, however, is that because the risk-free rate is non-zero, the Day 1 additional payment must be appropriately discounted. In Transaction 7, Owner's maximum payout on Day 2 is $2.50. Owner can be guaranteed not to have to make that payout on Day 2 if on Day 1 Owner pays, in addition to the $3.00 for the OTM put option, the present value of $2.50 as measured on Day 2 and, in exchange, receives $2.50 more on Day 2 than Owner would have received in Transaction 7. The value on Day 1 of $2.50 as measured on Day 2 is $2.26.[99] Therefore, the parties can replicate Transaction 7 as follows:

> **Transaction 8: Division plus option plus prepayment.** Same as Transaction 7, but Owner pays an additional $2.26 to Purchaser on Day 1, for a total of $5.26, and receives an additional $2.50 under each payout scenario. The parties agree to cash-settle on Day 2.

The payouts of Transaction 8 on Day 2 are as follows:

1. FMV of Underlier equals or exceeds $113.02: No payments.
2. FMV of Underlier is between $110.52 and $113.02: Purchaser pays Owner difference between $113.02 and FMV.
3. FMV of Underlier is less than $110.52: Purchaser pays Owner $2.50 plus difference between $110.52 and FMV, or difference between $113.02 and FMV.

This payout structure is the same as that for an ITM put having a strike price of $113.02, and, again, the Black-Scholes price for this option is $5.26.

c. *Accounting for the Time Value of Money*

The discussion above indicates that the analysis when the risk-free rate is positive does not differ from the analysis when the risk-free rate is zero, except that the time value of money plays a role. Its presence in the ITM option is easiest to see because the price structure of the portion of the ITM option that represents a disposition of economic ownership (risk and correlative benefit) incorporates a discount rate on the prepayment. Discounting, however, is no less present in the true option piece. If the portion of the option premium that represents an exchange of fluctuating returns for a fixed payment were unconditionally due on the exercise date rather than payable on the option sale date, the premium would be more expensive by an amount equal to the accrued interest on the premium between the date of entry into the option and the exercise date.[100]

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[99] That is, $2.26 invested at 10% continuously compounded yields $2.50 in one year.

However, the fact that one can impute an interest rate to establish economic equivalents between payments made on Day 1 and on Day 2 does not settle the question of whether an interest or discounting element is present in the standard option transaction, where the option premium is paid on Day 1. In particular, it does not demonstrate that the option purchaser gets the benefit of a discounted price for the option. That benefit arises only if the option premium is economically prepaid—that is, if the benefit that the option purchaser obtains is received later than the payment date. If so, then there has been an extension of the use of money for a period of time, which is to say a loan, rather than a simultaneous exchange of consideration for goods or services.[101] To illustrate, if on Day 1 *A* and *B* agree that *A* will pay *B* today for services to be rendered in one year, interest should be imputed to *A* (and deemed paid by *B*) on the implicit loan that runs from *A* to *B*: the price to *A* would be higher if *A* paid for the services when rendered in one year.[102] The difference between the price *A* actually pays and what the services would cost if paid for when rendered is an interest charge. Analogously, if on Day 1 *A* and *B* agree that *B* will provide the service to *A* immediately and *A* will pay for them in one year and performance actually occurs in one year, then the loan runs in the other direction—from *B* to *A*.

In the option context, the question is whether the option purchaser receives an immediate or ongoing benefit from the time the option is entered into, in which case the premium is at most partially discounted and therefore partially a loan, or instead the purchaser receives a benefit only on the exercise date (or dates, for American options). In the latter case, the loan element is clear: the option writer is paid now for benefits delivered only later. The considerations developed in Part II suggest that all benefits of the option transaction materialize economically on the exercise date (or dates); therefore, that interest does economically arise on all parts of the premium prior to that time. Consider first a simple European option, under which the option purchaser acquires a right that may be exercised on only one exercise date. Although, as one commentator observes,[103] the option purchaser acquires a valuable right on the option purchase date, that fact merely establishes that future rights have a present value, not that benefits are conferred when the future right is acquired. The purchaser of a remainder interest in property also acquires valuable rights on purchase, but it does not appear that the rights are used prior to the ripening of the interest. The question, therefore, is not whether the option purchaser acquires a valuable right on the option purchase date. Rather, it is whether any of the rights so acquired are immediately cashed out, and it seems clear that they are not. If they were, one would expect a systematic decline in the value of rights during the period between the option purchase date and the exercise date. No such decline takes place. Indeed, one does not imagine that if, after the option sale, the option writer signaled that it would default on the exercise date, the option holder's damages would be discounted by the portion of the pre-exercise period that had elapsed. Further, on the writer side, nothing is required until the exercise date. Prior to that time, the writer merely stands ready to perform.

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[100] *See* Daniel I. Halperin, *Interest in Disguise: Taxing the "Time Value of Money"*, 95 YALE L.J. 506, 512-15 (1986).

[101] Klein, *supra* note 69, at 1709-10.

[102] *See generally* Halperin, *supra* note 100, at 512-15.

The question is more difficult for an American option. The analysis runs the same for the period prior to the first exercise date, but it is less clear how to analyze the period during which exercise is possible. In purely legal terms, during the exercise period, the option writer has an ongoing obligation to do something until the earlier of exercise or lapse, suggesting that benefits may be provided continuously during the exercise period. Even so, the fact of an on-going obligation does not seem to give rise to the transfer of an on-going benefit or service. Unlike a person who contracts to provide services as needed over a fixed period of time, the obligation under an option contract is singular. The option writer has only one obligation; prior to fulfilling it, the writer need do nothing, just as during the pre-exercise period. Conversely, once exercise occurs, the duty is fully discharged. The only difference between the writer's obligations before the exercise period and during the period prior to exercise is that the writer may be more constrained in its use of resources because it must have the resources on hand at all times from the first exercise date until exercise or lapse. This heightened obligation appears to be relatively trivial.

Further, the case for treating the service as provided on exercise is even stronger in economic, as opposed to legal, terms. As a matter of economic theory, any call option should be exercised on the last day of the exercise period because of the benefit in *ex ante* terms that the passage of time has on its value.[104] Under the reasonable assumption that holders of financial options act solely on the basis of the economic dictates of their positions, an American call option should be viewed as equivalent to a European call option whose strike date is the last day of the American option's strike period. This general rule must be qualified for put options because the value of the right to invest the proceeds of sale on exercise of the put may exceed the value of the potential fluctuations in the underlier price, depending on the extent to which the put is ITM during the exercise period, the volatility of the underlier, and the risk-free rate.[105] Nonetheless, the fact that all of the value of the put, like that of a call, is realized on exercise suggests again that all benefits, if any, are realized on exercise.

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[103] Kevin J. Liss, *Options as Disguised Financings: The Demise of an Urban Tax Legend*, 27 VA. TAX REV. 907, 927-30 (2008).

3. *Risk Premium*

The discussion to this point has disregarded the market in risk; instead, it has proceeded on the assumption that market participants are as apt to take on risk as to lay it off, with the consequence that no party to the option transaction receives a fee to engage in the transaction. In practice, however, risk-bearing is costly because of the marginal utility of wealth, which means there is a systematic bias against risk assumption.[106] Individuals with low wealth will suffer a greater subjective cost from the loss of a dollar than they will enjoy a benefit from the gain of a dollar, while individuals with greater wealth are less subject to these costs. Thus, wealthier individuals tend to assume more risk than poorer ones. For example, individuals increase the proportion of fixed to variable returns in their portfolios as they age because[107] time is an inchoate form of wealth that investors transform into material wealth by investing in riskier returns earlier in their lives. Earlier generations pay later ones to do this. Similarly, more skilled individuals such as dealers or traders bear risk as a service to others and receive compensation for doing so. The compensation is typically observed in such items as the spreads that dealers charge, insurance fees, and the systematic difference between fixed and floating rates of interest observed in swap transactions.[108]

The phenomenon of fixed-for-floating-exchange that lies at the core of any option transaction might suggest that put writers and call purchasers systematically charge a premium to take on downside risk or to cash out upside benefit in any option arrangement. The intuition is clear in the case of put writers, who enable the option purchaser to cash out all downside risk for a fixed price while retaining the opportunity to benefit from market appreciation. The extension to call purchasers, however, does not hold. The reason for this is that risk premiums are present because of the unpredictability of losses, not of returns generally whether losses or gains.[109] It is the prospect of a loss, which is more costly for persons of relatively lower wealth, that generates a risk premium. Bearing in mind that the owner of any underlier can eliminate all risk simply by selling the underlier and investing in a riskless instrument, the owner of the underlier will not sell a call to lock in a fixed upside while continuing to bear downside risk unless the owner is paid a fee. That fee is a risk premium. Thus, in general, option holders pay option writers a risk premium. This premium should be observable as a higher option premium for both puts and calls, to the extent in either case the holder acquires a floating benefit or disposes of a floating loss.

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[104] HULL, *supra* note 1, at 211-12.

[105] *Id.* at 212-14.

[106] *See generally* Sergio Pastorello et al., *Statistical Inference for Random-Variance Option Pricing*, 18 J. BUS. & ECON. STAT. 358 (2000).

[107] Nancy Ammon Jianakoplos & Alexandra Bernasek, *Financial Risk Taking by Age and Birth Cohort*, 72 S. ECON. J. 981, 983 (2006).

[108] *See generally id.*

This analysis suggests a testable hypothesis. The theory developed in this paper is that all options contain an asymmetric exchange of a fixed payment either to receive a variable benefit (call option), or to shed an unknown risk (put option), and that ITM options contain a shift of a portion of the symmetric benefits and burdens of ownership of the underlier. The discussion of risk in this Section indicates that to the extent options are asymmetric exchanges of fluctuating for known returns (that is, not ITM), the writer of the option will charge a fee. However, to the extent an option is ITM, a portion of the benefits and burdens of ownership of the underlier *are* shifted to the party that would own the underlier (or an equivalent cash value) should the option be exercised. Therefore, in the case of an ITM call, one would expect the risk premium a call writer receives respecting the non-ITM portion of the option to be offset by the risk premium the option holder receives respecting the ITM portion, since the ITM portion involves an assumption of both opportunity *and* risk. In other words, observed risk premiums for calls should reach a maximum when the strike price is ATM on the option sale date and then decline rapidly for strike prices on the option sale date that are deeper ITM. Indeed, the net risk premium should shift in the direction of the call purchaser once the purchaser is bearing more than half the risk of ownership of the underlier–in other words, well before the strike price reaches zero, which is simply a prepaid forward contract.

A similar though less dramatic phenomenon should be observable in the case of a put option. The risk premium reaches its maximum when the option is sold ATM. For put options sold ITM, no additional risk premium is collected. Consequently, the portion of the option premium attributable to the ITM portion should not reflect any additional charge to assume risk.

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[109] *Id.*

C. Conclusion

Any covered option represents a separation of at least some of the risks of ownership of the underlier from some of the benefits of ownership. The extent of separation reaches a maximum when the strike price of the option is equal to the forward price of the underlier on the exercise date—that is, when it is ATM as measured on the exercise date. For options sold out of the money on the option purchase date, less separation occurs. For options sold in the money on the option purchase date, less separation also occurs than in an ATM option, but there is an additional forward property disposition. The payment arrangement obscures the forward property disposition because the arrangement makes the ITM portion of the option premium appear as consideration for additional "optionality," when in fact the arrangement is merely a timing mechanism.

Once the forward element of an ITM option becomes manifest, it becomes clear that the most apt analogy of an option to an existing instrument is to a partnership. Partnerships commonly exhibit the kind of sequential ownership involved in an ITM option. Indeed, Bruce Kayle has noted the substantial affinity between a call option and certain partnership arrangements, though he does not develop the point.[110] Rather, he illustrates the idea through a simple comparison. He notes that the owner of income-producing property (Partner 1) can contribute it to a newly formed partnership in exchange for cash and a partnership interest that entitles the partner to X% of the income from the property over time and to Y% of the appreciation of the property, if any, after five years, at which time the partnership will sell the property. Another person (Partner 2) would then contribute cash to the partnership in exchange for a partnership interest that entitles the partner to the remaining 100%-X% of the income and to 100%-Y% of the appreciation on sale.[111] Kayle observes that the partnership arrangement just described is not very different from Partner 1's sale to Partner 2 of an income interest and a separate option to purchase a portion of the property in five years.[112] Kayle's point is that the sequential nature of ownership characteristic of certain option transactions is just the sort of sharing arrangement commonly found in partnerships. That point is corroborated by the analysis above, which demonstrates that ITM options involve a kind of sequential sharing of ownership of the underlier. One party bears the first X% of risk and benefit, and the other party the remainder, though there is additionally an OTM option that then separates risk from benefit.

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[110] Kayle, *supra* note 11, at 270-75 (Example 10).

[111] *Id.*

[112] The cash flows are different in the option and partnership cases, but their present values should be the same.

Finally, the discussion in this Part explains the essential similarity between the forward sale portion of an ITM option and a collar. The only difference is in the identities of the persons holding the various interests in the underlier. In a collar, the original owner parts with risks and benefits at a remove from the forward price and retains the risks and benefits immediately surrounding the forward price, while in the forward sale portion of an ITM option the opposite occurs: the original owner parts with the risks and benefits immediately surrounding the forward price and retains the risks and benefits at a remove. As a consequence, the parties end up in the opposite posture, but the nature of the division of ownership is identical. This identity is obscured not only by the payment arrangement in an ITM option but by the fact that the ITM property disposition is married to a genuine option purchase in which one of the tails is also sold—through either an offloading of downside risk or the purchase of floating benefit, in either case in exchange for a fixed payment.

IV. TAX ANALYSIS

This Part evaluates the tax rules that ought to apply to options in light of the analysis in Part III. Because of the realization rule and the special treatment that the tax law affords to capital assets,[113] two basic cases arise: where the party selling upside potential (call writer) or purchasing downside protection (put purchaser) owns the underlier (a covered option), and where the underlier serves merely as a reference obligation for the option writer and holder. The first case divides into two subcases: where the underlier is held by the relevant party at all times between the option sale date and the exercise date, and where it is not, which is akin to a short sale. Subpart A deals with the cases involving ownership of the underlier, and Subpart B deals with those in which the underlier serves as a reference obligation. Finally, Subpart C explores some of the approaches that might be adopted under current law, or with some variation to current law, in light of the tax analysis that would apply under basic tax principles as developed in Subparts A and B.

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[113] *See, e.g.*, 26 U.S.C. § 1(h) (2006) (discussing preferential rates for certain long-term capital gains); 26 U.S.C. § 1211 (discussing limitations on capital loss deductions); 26 U.S.C. § 1212 (discussing carryover of excess capital losses).

A. *Underlier Owned*

In this Subpart, assume that the put purchaser or the call seller owns the underlier on the exercise date. In Section 1, ownership commences no later than the option sale date, while in Section 2, the consequences of the holder's acquisition of the underlier after the option sale but prior to the exercise date are briefly considered. Throughout, basic income tax principles are applied without regard to either special statutory and regulatory rules that provide for contrary treatment or questions of tax administration. Thus, dispositions of equity are taxable as realization events;[114] services income is taxed on receipt,[115] subject to certain limited exceptions;[116] and time value of money income accrues on a constant yield-to-maturity basis with continuous compounding.[117]

The principal tax question raised for any covered option is whether the option sale is in whole or part a capital transaction, and that question depends in turn on whether and to what extent the transaction is a property transaction.[118] In the financial instruments context, if it is a property transaction, it is likely to be capital,[119] unless the option is stock in trade or inventory of the taxpayer[120] or is a hedge with respect to stock in trade or inventory.[121] Capital transactions generally are treated much differently from noncapital transactions under the Code. Capital gains and losses are netted,[122] capital losses generally may not be deducted against ordinary income except to a limited extent,[123] and long-term capital gains of individual taxpayers are taxed at favorable rates.[124] Further, income from capital transactions generally is not registered by the tax system until realized.[125] By contrast, ordinary income is subject to graduated rates;[126] may be subject to an accrual or other regime that accounts for income on an on-going basis, regardless of when it is realized;[127] and may, in the case of losses, offset capital and ordinary income.[128]

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[114] 26 U.S.C. § 1001.

[115] 26 C.F.R. § 1.451-1 (2010) (discussing cash-method taxpayers); Schlude v. Comm'r, 372 U.S. 128, 138-39 (1963) (Stewart, J., dissenting) (discussing the accrual-method).

[116] *See, e.g.*, Boise Cascade Corp. v. United States, 530 F.2d 1367, 1378 (Ct. Cl. 1976) (accrual-method taxpayer permitted to defer, until performance of related services, inclusion of prepaid services income for which the associated future expenses were certain in time and relatively certain in amount).

[117] See note 52, *supra*, for a discussion of the discrepancies between continuous and periodic compounding. Tax law generally assumes periodic compounding for interest-like returns, while the Black-Scholes model applies continuous compounding.

[118] § 1221(a) defines a capital asset as all property other than certain property excluded from the definition. 26 U.S.C. § 1221(a).

[119] 26 U.S.C. § 1221(a)(1) (2006).

[120] 26 U.S.C. § 1221(a).

[121] 26 U.S.C. § 1221.

[122] 26 U.S.C. § 1222.

[123] 26 U.S.C. § 1211 (limitation on capital loss deductions); 26 U.S.C. § 1212 (carryover of excess capital losses).

[124] 26 U.S.C. § 1(h).

[125] 26 U.S.C. § 1001(a).

[126] 26 U.S.C. § 1(a)-(d).

Yet, although the concepts of "capital income" and "ordinary income" are deeply rooted in the income tax, most commentators agree that there is no pure concept of either that permits a ready or cogent argument for characterizing any particular item as intrinsically one or the other.[129] Modern finance theory has long recognized that any "ordinary" payment stream can be discounted into a present fixed "capital" sum. Given the economic equivalence between the two, efforts to identify a principled basis for determining which side of the line a transaction should fall on when the transaction shares some characteristics of both seems largely pointless.[130] Rather, a better approach is probably functional: Which characterization best serves the goals of the income tax? In light of the favorable treatment of capital income and the general preference to limit that treatment rather than to make it widely available, the better approach inclines toward ordinary characterization in ambiguous cases, unless a reason for a different result is manifest. Accordingly, in this discussion, capital treatment is reserved for gain or loss realized from the disposition of property, where property ownership is understood in its standard tax sense of possessing the opportunity for gain and the correlative risk of loss with respect to some item. Transactions involving the disposition of either just the opportunity for gain or just the risk of loss are not property transactions but are, instead, "legs" of a property transaction. Sale of an OTM option is one such leg, and if the option is exercised, transfer of the other leg occurs as well, meaning that a property transaction has occurred. If the OTM option is not exercised, then the initial leg is undone and no property disposition occurs. Consequently, capital treatment for the disposition that occurs on the option sale date of an OTM option (or more accurately to the extent the option is OTM) seems inapposite.

In an ITM option, by contrast, there is, in addition to an OTM option a property disposition of a portion of the underlier. This occurs because the transfer of benefits and correlative burdens in the ITM portion of the option is paradigmatic of a property disposition. Therefore, a tax system that reaches the "right" answer in the sense that it reserves capital treatment for disposition of all and only capital assets in any option transaction would tax the ITM portion, if any, as a capital transaction, assuming the underlier was a capital asset in the relevant party's hands.

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[127] *See* 26 U.S.C. § 475 (mark-to-market of dealer inventory); 26 U.S.C. § 1272 (current accrual of OID); 26 C.F.R. § 1.1275-4 (2010) (current accrual of OID on contingent payment debt instruments).

[128] *See, e.g.*, 26 U.S.C. §§ 62-63 (2006).

[129] *See, e.g.,* David A. Weisbach, *Line Drawing, Doctrine, and Efficiency in the Tax Law,* 84 CORNELL L. REV. 1627 (1999).

[130] *See, e.g.*, Calvin H. Johnson, *Seventeen Culls from Capital Gains*, 48 TAX NOTES 623 (1990).

1. Ownership Throughout the Option Term

Under the analysis in Part III, every option involves an asymmetric division of ownership of the benefits and burdens of the underlier to the extent it is non-ITM. This asymmetric division seems to bear some attributes of a property transfer and some attributes of a non-property transfer. Separately, ITM options involve a symmetrical transfer of benefits and burdens that more closely resembles a forward property disposition. The following Subsections address these aspects of option transactions.

a. Non-ITM Option

Part III established that a non-ITM option in effect divides ownership of the underlier between the option holder and the option writer. The transaction is not capital in the traditional sense because it is not a transfer of property, but a peculiar sort of sharing arrangement in which the option holder retains or acquires certain benefits but not detriments, while the writer acquires or retains certain detriments but not benefits. Together, the two parties have all the indicia of ownership but separately neither does for any range of values covered by the option. The full consequences of a disposition of the underlier to a third party would be borne just as they are borne by an owner, but these consequences would be divided unequally between the writer and the holder.

Viewed from this perspective, the non-ITM option premium is a fee that the holder pays for the writer to accept the adverse consequences of ownership. It is a prepayment for the service of bearing the risk of property ownership without the associated benefit on the exercise date. In general, prepayments not for a capital asset are subject to immediate taxation, unless an exception applies.[131] Apart from narrow statutory exceptions for certain types of subscription income[132] and club dues,[133] the only exceptions to immediate inclusion of prepaid services income are for an accrual-method taxpayer that either satisfies the requirements for administratively granted safe harbor relief (not here applicable)[134] or can reliably associate the prepaid item with an obligation to be discharged for a relatively certain amount in a readily identifiable subsequent tax period.[135] Because of the contingency of the obligation that an option writer assumes, the latter exception does not apply either, leading to immediate inclusion. Although a better theoretical result would be to defer inclusion (and any associated deduction) until the period of exercise or lapse and to treat the option premium as a loan, requiring immediate inclusion instead without any deemed interest or expense on the loan may not be a bad proxy for taxation of the holder's interest and the writer's associated deduction on a deemed loan.[136]

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[131] *See* 26 C.F.R. § 1.451-1 (cash-method taxpayers); Schlude v. Comm'r, 372 U.S. 128 (1963); Am. Auto Ass'n v. United States, 367 U.S. 687 (1961) (accrual-method taxpayers).

[132] 26 U.S.C. § 455 (2006).

[133] 26 U.S.C. § 456.

[134] Rev. Proc. 04-34, 2004-22 I.R.B. 991.

The holder should enjoy mirror treatment. Assuming the option is entered into in connection with the taxpayer's trade or business or other income-producing activity, the premium should be deductible as, respectively, a business expense[137] or an expense incurred in connection with the production of income.[138] The deduction should be allowed in the period in which the exercise date (or, for the reasons stated previously, the last date of the exercise period) occurs.[139]

If the non-ITM option is exercised, the second "leg" of the property disposition occurs, and at this point it is appropriate to treat the total transaction (option sale plus exercise) as a property disposition. This treatment is correct because the original owner of the property has now parted with the benefits and the associated burdens of ownership. Consider the simple OTM put option described as part of Transaction 2, under which Owner paid Purchaser $3.00 on Day 1 for the right to put Underlier to Purchaser on Day 2 for $97.94.[140] Suppose Owner exercises; i.e., Underlier is not worth more than $97.94 on Day 2. Solely with respect to the OTM portion of Transaction 2 (and assuming here that the associated ITM portion of the option had not been entered into), on Day 1, Owner transferred the risk of loss below $97.94 to Purchaser. Owner retained the risk of loss down to $97.94 as well as the potential for upside gain. On Day 2, Owner bears the loss from $100 to $97.94 and transfers all potential for upside gain to Purchaser. Although the property transfer appears to be off-market (in that the property appears to change hands on Day 2 at a price that differs from its FMV on that day), this is merely an appearance. The transfer of possession is a formality. The actual transfer of benefits and burdens took place in two steps—on Day 1 when some of the risk of loss shifted, and on Day 2 when the opportunity for gain went over as well. The two transfers, together, are on-market.

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[135] *See, e.g.,* Artnell Co. v. Comm'r, 400 F.2d 981 (7th Cir. 1968); Rev. Proc. 2004-34.

[136] *See* David Hasen, *The Tax Treatment of Advance Receipts*, 61 TAX L. REV. 395 (2008).

[137] 26 U.S.C. § 162.

[138] 26 U.S.C. § 212.

[139] If the deduction is under § 212, it may be subject to the 2% floor applicable to certain taxpayers' itemized deductions. *See* 26 U.S.C. § 67. Prior to the 2003 adoption of regulations under § 263, a cash-method taxpayer arguably was able to deduct the premium in the period paid, even if the exercise date occured in a subsequent period. *See* 26 C.F.R. § 1.461-1(a)(1) (providing that cash-method taxpayers deduct expenses in the year paid unless a long-lived asset is created). Under current regulations, however, most premiums paid for options exercisable in a subsequent year must be capitalized. 26 C.F.R. § 1.263(a)-4(c)(1)(iii)(E) .

[140] *See* 26 C.F.R. § 1.263(a)-4(c)(1)(iii)(B) (2004).

If the option lapses, the originally transferred leg is transferred back and no property disposition occurs. For instance, if Underlier in the example above is worth any amount greater than $97.94 on Day 2, the loss below $97.94 on Day 2 is zero.

b. ITM Option

For an ITM option, the analysis is more complicated. On the option sale date there is, in addition to a separation of some of the benefits of ownership of the underlier from some of the associated burdens, an on-market forward disposition of a portion of the underlier. This portion of the option sale, therefore, should be treated as a forward of a certain sort. Perhaps unfortunately, under current law, forwards are generally held open,[141] subject to certain exceptions,[142] until the actual transfer of the property takes place. Open transaction treatment for forwards when the seller owns the underlier seems even less justifiable than open transaction treatment for options. In a forward, all the seller retains is a wasting present interest—the value of which is known on the sale date. With respect to the portion sold, full transfer of benefits and burdens has occurred. Consequently, and as a number of commentators have observed,[143] a current sale of future rights should be accounted for currently even under our realization-based income tax. If forwards were currently taxed, then the ITM portion of an ITM option should be treated as a taxable transaction when the option is sold.

Naturally, the introduction of separate treatment for the property disposition portion of an ITM option introduces complexity into the tax rules for options. Moreover, the complexity is compounded by the fact that the property disposition in an ITM option is of a peculiar sort. It is not the disposition of a physical portion, a ratable portion, or a temporal portion of the underlier, but rather of a risk portion. For each of the first three types of division, the tax rules are relatively straightforward, at least in conceptual terms. If, for example, the owner of a share of stock sells a fraction of the share, the extent of the risk and benefit in the underlier that the purchaser acquires is proportional to the fraction purchased. Thus, the purchaser of one-half the share would assume a risk of loss equal to 50% of the risk associated with the full underlier and acquire the correlative potential benefit.[144] The same result applies to cotenants that share an undivided interest in real property.[145] Similarly, a temporal division of the underlier results, in conceptual terms, in the creation of a wasting present interest and a growing future interest. The tax rules for such property dispositions can be complicated, but the underlying conceptual analysis is well understood.[146]

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[141] 26 U.S.C. § 1233.

[142] 26 U.S.C. § 1256 (certain regulated futures contracts subject to mark-to-market taxation); 26 U.S.C. § 1259 (constructive sale of appreciated financial positions).

[143] *See, e.g.*, Cunningham & Schenk, *supra* note 8; Hasen, *supra* note 13; Levy, *supra* note 89. In addition, certain provisions of the Code already require present accounting for forward dispositions. *See, e.g.*, 26 U.S.C. § 305(e) (present accounting of certain preferred dividend-stripping transactions); 26 U.S.C. § 1286 (present accounting of bond-stripping transactions).

By contrast, in an ITM option, the transfer of partial ownership in the underlier is sequential, or "horizontal." The parties do not share risk and reward ratably or in temporal succession but rather in risk/benefit sequence. If the ITM portion of the option represents a forward sale of X% of the underlier, then the transferee assumes the first X% of risk and reward, while the transferor retains the remaining (100 – X)%, which is distributed about the transferred portion. This division suggests that the transferor should be viewed as disposing of property "off the top," in that the portion disposed of is the portion that is first and exclusively affected by price fluctuations in the underlier. Once the division occurs, post-option sale fluctuations in the value of the underlier that do not exceed the range of risk and benefit transferred have no economic effect on the transferor. This means that the transferor has no economic stake in those fluctuations. At the same time, price fluctuations that do exceed the range have no (additional) effect on the transferee, meaning that the transferee has no stake in them.

These considerations indicate that the transferor's tax basis in the portion of the underlier sold forward should be allocated only to the extent that it falls within the actual price range of that portion on the option sale date. If the transferor's basis does not fall within that range, the transferor has no tax cost associated with the disposition at all, and therefore no basis should be allocated to offset the proceeds. This approach tends to result in a more certain but smaller recognition of gain or loss on disposition than would a ratable allocation rule.

Transaction 4, discussed previously, illustrates the basic analysis:

> **Transaction 4: ITM put option**. Owner pays Purchaser $5.27 on Day 1 in exchange for the right to sell Underlier to

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[144] *See* 26 C.F.R. § 1.616 (2009) (providing basis rules for partial dispositions of property).

[145] *Id.*

[146] *See, e.g.*, 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).

> Purchaser on Day 2 for $102.27. The parties cash-settle the obligation on Day 2.

Transaction 4 consists of an OTM put having a strike price of $97.94 and a prepaid, on-market disposition of the first 25% of opportunity for gain and risk of loss of Underlier, corresponding to the range of values on Day 2 between $97.94 and $102.27. In the transaction, the risk-free rate was assumed to be zero, no risk premium was paid, and Underlier's FMV on Day 1 was $100.

If we suppose that Owner's basis is anything less than $97.94, then under the theory that basis should be allocated to the disposition only to the extent Owner has basis over the disposed of range, Owner should be treated as recognizing $100 - $97.94, or $2.06, of gain. Thus, if Owner's basis is $80, Owner has $2.06 of gain. By contrast, if Owner's basis is $98, Owner has $2 of gain.

One might object that if Owner has basis in excess of 75% of the Underlier's FMV, Owner should get a partial basis offset on the option sale date because only 25% of Underlier is sold. Thus, if Owner's basis is $80, it might seem Owner should recognize four-fifths ($80/$100) of $2.06, rather than the full $2.06. However, because the sale is not of a ratable portion but of an identifiable horizontal slice, and because the risk and benefit disposed of is associated only with that slice, a ratable basis allocation rule would seem to be incorrect; it does not associate "paid-for" basis with a "paid-for" portion of the underlier sold. Note further that although less basis offset occurs than in a ratable disposition, the amount of gain recognized on the option sale date is smaller. Although Owner has disposed of 25% of the opportunity for gain and risk of loss and Owner allocates no basis to the portion sold, Owner's gain is $2.06 rather than 25% of the entire $25 of built-in gain, or $6.25.

Analogous treatment occurs where Owner is in a loss position. Owner may take a loss equal to the lesser of $102.27 - $100 or Owner's basis in Underlier - $100. This treatment reflects the fact that, solely with respect to the ITM portion of the option, Owner has disposed of tax ownership through that range but not above or below it.

If the option is exercised, the retained portion of Underlier is simply transferred pursuant to the exercise, as described above in the OTM case. If the option is not exercised, the sold portion is deemed repurchased at its FMV and Owner's basis in that portion simply reflects the part of the option premium paid on Day 1 that is allocable to it.

2. *Ownership Acquired After Option Sale*

Under the analysis developed in Part III, only ITM options involve a property transfer prior to the exercise date. All options, however, involve a risk-benefit disaggregation transaction on the option sale date, together with a reunification on the exercise date of the parts previously separated. If the option is exercised, the "trailing" leg that the initial owner (the put seller or call writer) retained goes over to the property purchaser, while if the option is not exercised, the "leading" leg that the initial owner transferred is returned to that owner. Since the non-ITM portion does not involve a property disposition, the ownership of the underlier prior to the exercise date is irrelevant. Gain or loss on exercise of the option will continue to be determined by the difference between exercise price and basis of the underlier and its basis in the owner's hands, whether that basis was determined after the option sale date (because the underlier was purchased after that date) or not.

A similar approach should apply to the ITM portion, if any, of an option where the underlier is acquired after the option sale date. There are two cases in which acquisition of the underlier during the pendency of the option may have an effect on the tax treatment of the transaction prior to exercise: where the purchaser of an ITM put and the seller of an ITM call acquire the underlier. Recall that for both types of ITM options, on the option sale date the underlier seller promises to deliver a portion of the underlier (or its equivalent) to the counter-party on the exercise date. Prior to the seller's purchase of the underlier, there should be no tax consequence to the disposition. Under a realization-based income tax, the tax consequences of entering into the option transaction should first be reckoned on the option sale date when the forward transfer occurs. On that date, the expected cost of satisfying the transfer is zero: the seller conceptually exchanges a portion of the underlier for a bond of equal value paying the risk-free rate. The expected cost to the seller on the option sale date of satisfying that obligation is just the FMV of the portion of the underlier sold forward, since that is what the seller would have to pay on the option sale date to procure the portion sold forward.

Once the seller acquires the underlier, additional tax consequences of the sale may be reckoned. At that time, the seller's cost of satisfying its obligation under the forward sale portion of the option is established. For example, consider the ITM put option in Transaction 4, but assume that Owner does not own Underlier on the option sale date. If Owner purchases Underlier at $90 six months after the option sale date, then Owner's cost of delivering 25% of Underlier on Day 2 is $0 because the portion of the underlier disposed of in the ITM piece of the option is entirely in excess of the cost to Owner of acquiring the property.

B. Underlier as Reference Obligation

If the parties to the option transaction use the underlier merely as a reference obligation, the transaction becomes a simple bet. It is a zero-sum game in which one party's gain is precisely offset by the counter-party's loss.[147] In recent years, the tax law has tended to treat such bets as generating capital income and loss because of the risky nature of the returns they generate,[148] but there appears to be no deep reason why the returns should not be characterized as ordinary and subject to an economic accrual or similar regime, such as mark-to-market taxation.[149] There is no particular historical precedent for according capital treatment to returns just because they are risk-based, and the policy rationales for deferral and favorable rates on capital income do not seem to apply to bets. In general, these rationales center on encouraging the formation of real capital and avoiding the bunching of income in a single tax year that arises under the realization rule. Wagers do not involve the formation of physical capital, and bunching becomes a problem only where an accrual regime is assumed not to be in place.

If, however, capital treatment of traditional capital assets (such as where the option involves a physical underlier) is taken as a given, then the tax rules for wagering-type options should take account of the avoidance possibilities that dissimilar rules for physical and notional options would create.[150] The avoidance possibilities derive from two main problems: discontinuity and inconsistency. Discontinuity arises when instruments that generate similar returns are subject to dissimilar tax rules;[151] the general solution is to tax similar instruments like their close substitutes.[152] Inconsistency arises when the same return is taxed differently, depending upon the form in which it is received;[153] the general solution is to adopt a robust method for identifying the overall economic return the taxpayer locks in *ex ante*, but the problems with developing such methods are notorious.[154] The problem in the present context is that from the standpoint of either the writer or the holder of the option, the returns from the bet may be similar to the returns from a physically settled option. Accordingly, the rules ought to be similar for the two types of transactions. Further, the rules need to require taxpayers to associate offsetting positions, such as where the taxpayer buys an option in one form and sells a similar or identical one in another. How the rules might accomplish these goals falls outside the scope of this discussion; I merely identify the issues here.

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[147] *See* Edward D. Kleinbard, *Risky and Riskless Positions in Securities*, 71 TAXES 783, 784 (1993).

[148] *See, e.g.*, 26 U.S.C. § 1234A (2006) (treating certain "closing transactions" as generating short-term capital gain and loss); 26 C.F.R. § 1.446-3(c) (2010) (bullet swap not treated as subject to NPC rules).

[149] *See* Keinan, *supra* note 8, at 146 (arguing that all returns from financial instruments should be treated as ordinary and subject to taxation on an accrual or mark-to-market basis); Hasen, *supra* note 13, at 403-07 (arguing that a better basis for distinguishing between returns entitled to capital treatment, including deferral under the realization rule, and ordinary returns accounted for under an economic accrual regime is whether the taxpayer owns a physical underlier); *see also* Kleinbard, *supra* note 147, at 784 (noting that financial products differ from traditional capital assets in that the former are simple bets that can be replicated in principle indefinitely).

[150] David A. Weisbach, *Line Drawing in the Tax Law*, 84 CORNELL L. REV. 1627 (1999).

[151] Jeff Strnad, *Taxing New Financial Products: A Conceptual Framework*, 46 Stan. L. Rev. 569, 573 (1994).

[152] Weisbach, *supra* note 150, at 1661.

[153] *Id.* at 1645.

C. *Possible Tax Approaches*

The rules described in the preceding Subparts suffer from both complexity and the fact that they diverge considerably from current law. The question therefore arises how one might simplify the rules suggested without either sacrificing the basic ideas or introducing major complexity into current law. The following offers some general suggestions.

1. *Basic Problems Under Current Law*

The principal authorities that govern the taxation of options are Revenue Ruling 78-182[155] and, for options on financial assets (other than those taxed under § 1256, or held as inventory or by dealers), §§ 1234 and 1234A. In general, these authorities provide for open transaction treatment on the writing of an option and for capital treatment on sale, exchange, lapse, termination, or exercise of the option if the underlier is or would be a capital asset in the taxpayer's hands. When the option is exercised, in the case of a call the cost of the option is added to the purchaser's basis and treated as part of the amount realized by the seller, and the cost of a put is treated as a reduction in the amount realized by the seller and as reducing the purchaser's basis in the property. There is some question whether any of these authorities apply to options that by their terms are or may be cash-settled.

The main differences between these rules and the rules set forth in Subparts III.A and III.B are as follows:

1. Existing law places most options on open-transaction accounting;

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[154] *Id.* at 1663.

[155] Rev. Rul. 78-182, 1978-1 C.B. 265.

2. Existing law treats all portions of the option premium as capital (assuming the underlier is a capital asset in the hands of the relevant party), whereas the preceding discussion suggests that the option premium, to the extent it is for an OTM option, is ordinary income to the option writer (and creates an ordinary expense to the option purchaser);

3. No interest income or deduction is imputed to the parties to an option under present law, whereas economically all parts of the option premium are discounted to the present value of the premium payment on the exercise date; and

4. The nonproperty portion of an option transaction is not separately treated from the property portion.

The first of these differences is the most significant because it represents a significant deferral opportunity in light of the fact that many parties to option transactions may be tax-indifferent, or at least relatively tax-indifferent.[156] The simple solution is to treat option premiums as generating ordinary income to the writer and as providing a deduction to the purchaser in the period in which the strike date (or the last strike date for American options) occurs. Regarding timing, this change to the law could be accomplished administratively through the revocation of Revenue Ruling 78-182, except that it is unclear whether the Service would or should revoke 78-182 in light of Congress's evident intent to affirm open transaction treatment through adoption of §§ 1234 and 1234A. Further, character changes would need to be addressed through amendment of §§ 1234 and 1234A directly.

If one wanted to rectify the problem of mixed ordinary and capital treatment of the premium, it would be necessary for Congress to remove the statutory obstacles to bifurcation (again, §§ 1234 and 1234A). Having done that, the Treasury likely would have authority to require bifurcation of the option into capital and noncapital portions on the option sale date and to require separate accounting of the various pieces of the option payout on the date of exercise, lapse, or disposition.[157] This might or might not prove burdensome, but the fact that parties dealing in financial options tend to be sophisticated weighs in favor of a relatively robust accounting regime, possibly augmented by a simplified accounting method that taxpayers could elect to have apply.[158]

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[156] *See* David M. Schizer, *Balance in the Taxation of Derivative Securities: An Agenda for Reform*, 104 COLUM. L. REV. 1886, 1893-94 (2004).

[157] *See* 26 U.S.C. § 446 (2006) (requiring taxpayer's method of accounting to "clearly reflect income"); 26 U.S.C. § 7805 (providing Treasury general authority to prescribe regulations under Title 26).

As regards the problem of failing to account for interest, one could impute interest income and deduction to the parties on the option premium. It is not clear that any provision of current law prevents such an imputation. A somewhat less accurate but administratively easier approach would be to treat payment of the option premium as a closed transaction on the option sale date, as indicated above.

Finally, the failure to tax the ITM portion of an option on the option sale date mainly becomes an issue only if forwards become subject to current taxation, as a number of commentators have argued they should.[159] If forwards were taxed on a current basis, it would be appropriate if not necessary given the similarity of the ITM portion of ITM options to forwards to alter the rules for options to require identification of the ITM portion, if any, with associated treatment under the forward contract rules. By the same token, it is unclear how much would be sacrificed on the option side in preserving open transaction treatment for both standard forwards and the ITM portion of an option. If the distortion is small, the gain in simplicity may be worth the cost of incorrect taxation. Of course, that result would preserve whatever distortions persist as a result of the system's failure to tax forwards correctly.

A further, less significant, problem resulting from the failure to tax the ITM portion of an option as a forward on the option sale date is that the current rules do not treat any portion of the option sale as taxable if the option is not exercised. The analysis here has demonstrated, however, that economically the owner of the underlier should be taxed on the forward portion of the ITM option regardless of whether the option is exercised. Nonexercise should be treated as a sale back to the option writer, resulting in appropriate basis adjustment, not as though no sale had occurred.

2. *Proposals*

The discussion above suggests the following rules as a possible regime for taxing financial options.

a. *Option Sale Date*

- To the extent the option is OTM, the writer includes the premium in income. The holder takes a deduction under § 162 or 212 for the premium in the period in which or with which ends the last day that the option may be exercised, subject to any limitations that may apply.[160]

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[158] *See, e.g.*, Prop. 26 C.F.R. § 1.446-3(e) (proposing a variety of methods to account for nonperiodic contingent payments made on certain NPCs).

[159] *See supra* Part III.A.

- To the extent, if any, the option is ITM, the parties treat the premium as a loan or a prepayment. The reason for differing treatment from the OTM piece is that this portion of the premium is nothing more than a payment arrangement for the fluctuation in the part of the underlier sold forward. Interest is imputed to the option holder at the risk-free rate, with a corresponding deduction to the option writer. Alternatively, the premium could be included and deducted on receipt, with corresponding adjustments on exercise.

- For an ITM option, the portion of the option that represents a forward sale is treated as such on the option sale date, with gain or loss recognized on that date. This rule presupposes that the rules for forwards are changed to provide for taxation on the sale date rather than on the date of delivery.

    - As an alternative, the forward may be held open until the exercise date, in which case the deemed purchase price must include an interest factor. Further, on lapse, the portion sold forward is treated as immediately sold back.

b. Option Exercise

- For non-ITM options, the transaction is a sale at the exercise price, with gain or loss recognized. Character depends on whether the seller of the property holds it as a capital asset.

    - A policy question arises regarding the measuring period for the underlier owner. Where the seller's holding period on the option sale date is one year or less and on the exercise date is more than one year, it is unclear whether gain or loss on exercise should be short-term or long-term.[161] As explained above, the sale in effect occurs in two stages. Administrability considerations suggest that a bifurcation regime should not apply, while the general policy of limiting the preferential treatment of capital transactions suggests that the gain or loss should be short-term. On the other hand, there may be greater deadweight loss from denying long-term capital treatment in this setting than from permitting it. The correct answer is not clear.

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[160] *See, e.g.*, §§ 68 (phase-out of itemized deductions), 161 (denying double deduction for any item), 261 (disallowance of deductions for expenditures that must be capitalized).

[161] *See* 26 U.S.C. § 1(h) (2006) (providing for preferential treatment of long-term capital gains for individuals); 26 U.S.C. § 1222 (defining long-term capital gains as gains on capital assets held more than one year); 26 U.S.C. § 1223 (defining holding period).

- For ITM options, exercise represents a sale of the balance of the underlier, but taking account of basis already assigned to the portion sold forward on the option sale date.

c. Option Lapse or Cancellation

- On a non-ITM option, there are no consequences on lapse other than deduction for the premium, if it has not already been deducted.

- On an ITM option, the property previously treated as sold forward is treated as sold back; if it was held open on the option sale date, a sale and sale-back occur.

V. CONCLUSION

Options represent nothing more than a particular type of property division. They are not spatial, as when a party sells a physical piece of a larger asset, temporal, as when a party sells a leasehold or a remainder interest in an asset, or "vertical," as when a party sells a ratable share of property so that the two owners share risk and reward as tenants in common. In their pure form, options are a division of risk and reward for which the party bearing the risk without the reward is appropriately compensated. In addition, ITM options become, in part, a horizontal or sequential transfer of ownership, much as may occur in a partnership. This horizontal form of ownership divides the incidents of ownership according to who bears the first risk and benefit, and who bears the rest. As previously explained, the ITM portion is identical to a collar transaction, except that in a collar the original property owner retains the first risk and benefit while selling the last; while in the ITM portion of an ITM option, the original owner retains the last and sells the first.

The forward transfer of property that takes place in the ITM portion, if any, of an option has not been identified previously because the payment arrangement between the parties to an option transaction obscures it. This payment arrangement ensures that the option purchaser makes only one payment to the option seller (apart from a payment in connection with the exercise of a call), and it reflects appropriate discounting at the risk-free rate because the payment occurs on the option sale date, not the exercise date. But the payout structure of any actual ITM option is identical to the payout structure associated with a forward transfer of a portion of the underlier coupled with a garden-variety OTM option. This structure explains why, even though non-ITM options are fundamentally different from forward sales as regards the portion of property disposed of, ITM options become partial forwards and shade into full forwards at the limit.

Our realization-based income tax recognizes a difference between "ordinary" and "capital" income—however tenuous or unstable the underlying concepts may be. In light of the difference, and assuming it persists, the tax system ought to attempt to identify the portions of option transactions that qualify as ordinary or capital and tax them accordingly, assuming that administrative costs resulting from complexity and gamesmanship do not swamp the benefits that might arise from a more accurate taxation of options. Part III offers one set of possible solutions in light of these concerns, but it is by no means the only possible set. It also illustrates some of the tradeoffs that arise in any effort to develop a workable system that taxes options in approximately the "correct" manner, where "correct" is understood against a baseline of realization-based taxation for risky returns generated by capital and special rates and basketing rules for capital income.