APPLIED TAX FINANCE ANALYSIS OF REAL ESTATE TAX SHELTER INVESTMENTS†

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PROLOGUE

For some time now I have been considering the merits of attempting to publish a law review article devoid of footnotes. My efforts to write such an article were long stymied, however, by my hesitancy to undertake a project for which it would be difficult to find a forum because of the "unscholarly" nature of legal writing without footnotes. Just when I had about given up hope, I came across Professor John Nowak's essay "Woe Unto You, Law Reviews," in Volume 27 of the Arizona Law Review. I was inspired by Professor Nowak's observation that one of the "three main culprits in the death of decent writing in law reviews" is "the footnote." My initial euphoria was quickly, but temporarily, dashed when in the very next paragraph, he went on to say that footnotes were entirely appropriate in "articles focused on the narrowest of points," giving income tax depreciation rules as an example. Rather than be disillusioned, however, I took up the gauntlet, more determined than ever to write a law review article without footnotes — and an article about income tax depreciation rules at that.

This article does not really fall into any of the three classes of traditional legal scholarship described by Professor Nowak. It neither attempts to resolve a narrow legal problem nor explains the development of a particular doctrine of law. And it clearly is not part of a debate on the moral principles that should be embodied in law. Rather, this article accepts, for better or worse, the current state of the law and presents a highly technical, practical decision-making model that may be used by lawyers generally familiar with certain unambiguous tax laws governing real estate investments in advising clients regarding the after-tax economic investment suitability of particular real estate investments. Given this purpose, there is really no need for footnotes. As a colleague of mine once told me, "if it's worth saying at all, it's worth saying in the text." With this in mind, and even though this article is not part of "an open, no-holds-barred debate between authors about what was morally acceptable or unacceptable in court rulings or legislative actions" that Professor Nowak had in mind when he called for legal scholarship freed from the shackles of footnotes and the "convoluted style of law review writing," I offer a different type of law review article.

INTRODUCTION

Investment in depreciable real estate is a traditional, conservative tax shelter investment that offers the investor not only significant tax advantages, but also a substantial likelihood of economic gain over and above the profits derived from the tax shelter aspects of the investment. Like all tax shelter investments, real estate tax shelters are

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based on the triad of deferral, conversion, and leverage. Unlike many other shelters, however, investment in depreciable real property legitimately offers all three of these. Furthermore, as will become apparent as we examine the fundamental rules governing the taxation of income from real estate, all investments in depreciable real estate are tax shelters, even if the real estate is owner occupied for use in the investor's trade or business. Nevertheless, the tax shelter aspects of investment in depreciable real property should not obscure the economics of the investment. The property must generate sufficient cash flow to be economically viable. But the tax aspects of the investment enhance cash flow in the early years, and therefore, will render viable investments that would not have been viable based on the before-tax return to the investor. Indeed, the investment will not only be viable, it will be highly desirable.

This article will explore the mechanics by which deferral, conversion, and leverage operate in the context of the real estate tax shelter to enhance the after-tax rate of return to the investor. Deferral and conversion, either alone or operating in tandem, will reduce the effective rate of tax imposed on income from the investment to something below the statutory rate. Operating in tandem, deferral and conversion can result in a negative rate of tax. A negative rate of tax occurs when not only is all of the income from the investment received tax free, but as a result of the tax treatment accorded to the investment, the investor's income from other sources is relieved from a portion of the tax burden that would otherwise be imposed on it. Leverage — borrowing a substantial portion of the purchase price of the investment — enhances the magnitude of the reduction in the effective rate of tax or increases the negative tax subsidy to the investor.

After examining the theory of how real estate tax shelters work, this article will present some analytical methods by which the tax advisor to a potential investor in a particular real estate tax shelter can evaluate the merits of a particular investment. All of these analytical methods are based on an analysis of the projected cash flow from the investment. Cash flow projections may be analyzed using a number of different methods which this article will present, including the net present value, internal rate of return, and adjusted (or external) rate of return methods. Whichever method is used, however, as will be explained in the article, it is imperative that the cash flows analyzed are after-tax cash flows.

I. The Use of Analytical Tools: Strengths and Limitations

The evaluation methods described in this article are merely tools for the tax practitioner. They are not talismanic because they rely on stated assumptions regarding the before-tax cash flow that will be generated by the particular real estate project. The answers produced using these methods of analysis are no better than the data that have been used to produce them. They depend on reliable cash flow projections. A potential investor, therefore, must be certain that the cash flow projections used to analyze the investment are reasonably reliable estimates.

For a passive investor who is acquiring an interest in a limited partnership real estate tax shelter, whether widely held or closely held, the general reputation of the promoter in the real estate industry is an important factor in determining how likely it is that the estimates are reasonable. Even when the promoter has a good reputation, however, the cash flow projections for a particular project should be analyzed. An investment based on anything less than evaluation of the projected before-tax cash flow

and analysis of the tax benefits and resulting after-tax cash flow is a gamble based on guesswork. Some gambles may be better than others, but a gamble is a gamble.

Any analysis of a proposed real estate tax shelter must also take into consideration the likelihood that the expected tax benefits will actually be available, that is, whether they will survive audit and litigation if challenged by the Internal Revenue Service. While taxpayers have claimed some tax benefits with respect to real estate that the Internal Revenue Service has challenged and which have been denied by the courts or revenue rulings, most real estate deals do not venture close to the line and are not subject to challenge. This is largely attributable to the exemption of real estate from the "at-risk" rules of the Internal Revenue Code (I.R.C.) § 465. For depreciable real estate, unlike other tax shelter investments, depreciation deductions founded on nonrecourse debt under the doctrine of *Crane v. Commissioner*, 331 U.S. 1 (1947), are allowable even if they exceed the taxpayer's cumulative equity investment in the property. Nevertheless, if the amount of the nonrecourse purchase money debt greatly exceeds the fair market value of the property, the basis and depreciation deductions claimed with respect to the property are subject to challenge on the grounds that the debt is not bona fide. *See, e.g.*, *Estate of Franklin v. Commissioner*, 544 F.2d 1045 (9th Cir. 1976).

Very complex issues regarding the proper year for accrual of rental payments and interest deductions may arise under I.R.C. § 467, in certain sophisticated sale and lease-back arrangements. A number of other long-established limitations on deductions, such as the prohibition of the deduction of partnership syndication fees under I.R.C. § 709, and the capitalization of construction period interest and real property taxes under I.R.C. § 189, must also be considered in evaluating a prospective real estate tax shelter investment. These issues are illustrative, not exclusive. Other questions regarding the availability of tax benefits may arise, and the risks must be considered.

Under Treasury Circular 230, § 10.33, any tax opinion letter must be prepared in accordance with strict guidelines, which include the preparer's "opinion whether it is more likely than not that an investor will prevail on the merits of each material tax issue presented by the offering which involves a reasonable possibility of challenge by the Internal Revenue Service." Thus, for the advisor to the passive investor, there is a substantial dose of predigested protein available. Its quality is determined with reference to the competence and ethics of the promoter's tax advisor. Reliance on the tax opinion letter in a syndicated real estate investment, however, does nothing to inform the prospective investor's tax advisor regarding the suitability of the investment for the client from a "tax economics" perspective. Even though the offering materials may provide a projection of tax benefits, each individual investor's tax advisor should evaluate the tax economics of the deal from the perspective of the client. In small projects that are not syndicated, but in which a small number of investors who know each other join together, in all likelihood there will not be any tax opinion letter. Each investor's tax advisor must understand the deal. As far as the tax advisor for the promoter is concerned, it is difficult to comply with the requirements of Treasury Circular 230 without understanding the basic principles of the tax economics of real estate tax shelters.

II. The Tax Shelter Triad: Deferral, Conversion, and Leverage

An analysis of how real estate tax shelters work must begin with an examination of the three fundamentals of deferral, conversion, and leverage. Each of these concepts has an important role in enhancing the after-tax rate of return to the investor.

A. *Deferral*

1. The Interest Free Loan Concept

Deferral refers to the postponement, not the elimination, of tax on economic income. The receipt of economic income in a particular year without the imposition of a full tax burden on that income in the year received, coupled with the inclusion in income in a future year of an offsetting amount of taxable income without the receipt of a commensurate economic benefit, results in deferral. Deferral is frequently said to be the equivalent of an interest free loan from the government. Generally speaking, this is true. The exclusion of a particular amount from taxable income in the earlier year reduces taxes by an amount equal to the excluded income multiplied by the taxpayer's marginal tax bracket. These tax savings constitute the loan principal. Repayment of the loan occurs in the future year in which the taxpayer must include in taxable income the amount excluded in the earlier year. This results in an imposition of a tax equal to the amount included in income multiplied by the taxpayer's marginal tax rate. If the taxpayer is in the same marginal tax bracket in both years, the loan principal is repaid without any interest. The longer the period that the loan is outstanding, the greater its value to the taxpayer. The value of deferral resulting from a tax shelter can be quantified using analytical methods based on the time value of money, which will be discussed in Parts III and V of this article.

2. Interest on the Loan

If the taxpayer is in a higher tax bracket in the later year, the loan will be repaid with interest. The amount of the interest will depend on the period of years over which the deferral extends and the difference between the investor's marginal tax brackets in the two years. For example, assume that in Year 1 an investor receives $1,000 but through some provision of the Internal Revenue Code defers taxation until Year 2. If the investor were facing the 42% marginal tax rate in Year 1, his tax savings would have been $420. When taxes are paid in Year 2 the loan has been repaid without interest if the investor is still in the 42% marginal tax bracket. But if the investor is in the 50% bracket in Year 2, his taxes on the $1,000 will be $500. By deferring taxes of $420 for one year, he increased his taxes by $80. Thus he has paid $80 of interest on a loan of $420 for one year. At simple interest, that is an annual interest rate of 19%, and the deferral was no bargain. Indeed, in this case deferral was a disaster because the "interest" paid in the form of income taxes is not tax deductible interest. Therefore, because the investor was in the 50% bracket, the 19% annual interest was the equivalent of interest at a rate of 38% on a true loan, on which interest payments would have been tax deductible. If the deferral period is long enough, however, the annual interest rate may be reduced to an acceptable level. For example, if the $1,000 of income escaped inclusion until Year 5 instead of Year 2, the rate of interest (compounded annually) would be 3.55%. This would be the equivalent of 7.1% tax deductible interest on a true loan and is quite a bargain.

3. Forgiveness of the Loan

On the other hand, if the rates were reversed, and the taxpayer were in the 50% bracket in Year 1, saving $500 of taxes, and in the 42% bracket in Year 2, paying $420

in taxes, then not only would the taxpayer not have been required to pay any interest, but repayment of $80 of the original loan principal of $500 would have been forgiven. Again the loan generated by the tax system is outside of the tax system and the windfall will not be taxable income under § 61(a)(12), which normally includes discharge of indebtedness income in gross income. Forgiveness of the loan most frequently occurs through conversion of ordinary income to capital gains. This is effected by claiming depreciation (ACRS) deductions in early years, which are offset by § 1231 gains, which in turn become long term capital gains in a future year.

4. The Value of Deferral Illustrated

The extraordinary value of deferral is best illustrated by the example of the familiar Individual Retirement Account (IRA). Under I.R.C. §§ 219 and 408, contributions to an IRA are deductible in computing taxable income, the interest (or other income) earned by the IRA is not currently taxable, and withdrawals from the IRA are fully taxable. This is pure deferral in its simplest form, nothing more, nothing less.

Assume that an investor in the (mythical) 40% tax bracket deposits $2,000 to an IRA on December 31 of Year 0. The entire $2,000 is invested in a ten-year certificate of deposit yielding 10% per year, compounded annually. At the end of ten years, assuming that there have been no additional deposits to the IRA, the balance in the account will be $5,188. If the investor, who we will assume is then 60 and still in the 40% tax bracket, withdraws the balance of the account, he will owe taxes of $2,075 and have $3,113 left after taxes.

Now assume that in Year 0 the investor had available the alternative of investing outside of the IRA in a state or municipal bond mutual fund, the interest from which would be tax free under I.R.C. § 103, and that the interest, which was (unrealistically) 10% per year, was all reinvested in the fund. If the investor had elected to purchase shares in this mutual fund, he would not have had available $2,000 in Year 0. He would have had to pay taxes of $800 and would have invested only $1,200 in the mutual fund. At the end of ten years he could withdraw the balance of the mutual fund tax free. What will be the balance available in the tax exempt mutual fund? The answer, which may be surprising, is $3,113 — an amount identical to the after-tax withdrawal from the IRA. What this illustrates is that the effect of the pure deferral of an IRA is to tax the initial investment, but to exempt in perpetuity the interest earned by that investment. Deferral is indeed a very valuable tax avoidance device.

5. Deferral and Equity Financed Real Estate

Deferral is available with respect to investments in depreciable real estate even if the entire purchase price is equity financed. Under the ACRS capital cost recovery system provided in I.R.C. § 168, the owner of depreciable real estate is permitted to deduct the cost of the building over a nineteen-year period, offsetting the inclusion in income of rents from the building (or income from other sources), even though the building has not actually been consumed in the production of income or suffered a loss of value. Indeed, the building may be more valuable after nineteen years, even after making a compensating adjustment to take into account inflationary changes in the general price level. If the building has not declined in value, the rents received but not included in taxable income because they were sheltered by the ACRS deductions represent true economic income, the taxation of which has been deferred. Taxes will be

paid on those rents, in effect, when the building is sold and the investor realizes and recognizes gain equal to the prior ACRS deductions that results from the decrease in the basis of the building as mandated by I.R.C. § 1016 as a result of having claimed the ACRS deductions.

B. *Conversion*

1. Rate Arbitrage

Conversion refers to the transmutation of income from ordinary income to long term capital gains. Because long term capital gains are taxed at a rate equal to 40% of the rate applicable to ordinary income, the tax savings are substantial. Standing alone, conversion will never produce an after-tax rate of return greater than the before-tax rate of return on an investment. It does, however, magnify the effect of deferral by effecting the tax bracket arbitrage that results in less than full repayment of the interest free loan from the government described above in section II.A.3.

2. Ordinary Deductions and Capital Gains

Conversion is available in real estate tax shelters because ACRS deductions are claimed as deductions in computing ordinary income, but gain on the sale of the property may be accorded § 1231 treatment, which is the first step on the path to long term capital gains. This is true even though the gain on the sale of property is attributable to reductions in basis mandated by I.R.C. § 1016, as a result of claiming the ACRS deductions. The availability of conversion is not, however, unlimited. Under I.R.C. § 1245(a)(5), commercial property — that is, any depreciable real estate other than residential rental property (primarily apartment buildings) — is subject to § 1245 recapture unless ACRS deductions have been claimed under a straight line election pursuant to I.R.C. § 168(b)(3). Thus, gain on the sale will be ordinary income to the extent of prior ACRS deductions. Only that portion of the gain resulting from a sale in excess of the original purchase price will be § 1231 gain. Accordingly, there is no conversion associated with such an investment. Section 1250 recapture will recharacterize as ordinary income a portion of the gain on the sale of an apartment building prior to the end of its recovery period. The portion of the gain that will be ordinary income is the amount by which cumulative ACRS deductions exceed the amount of ACRS deductions that would have been claimed if the taxpayer had elected to recover the cost of the building over nineteen years using the straight line method. Thus, for investments in apartment buildings conversion may be effected with respect to an amount equal to the entire purchase price of the building if the property is held for its full cost recovery period. Only limited conversion will be realized, however, if the property is sold during its cost recovery period.

C. *Leverage*

1. Borrowing the Purchase Price

Leverage refers to debt financing a portion of the purchase price of an asset. The greater the portion of the purchase price that is debt financed, the more highly leveraged the investment is said to be. Real estate investments may be highly leveraged through normal legitimate methods of financing. The combination of a substantial purchase

money mortgage loan from an outside institutional lender combined with seller financing of the balance of the purchase price (which offers significant tax advantages to the seller under I.R.C. § 453) may result in the acquisition being completely or nearly completely debt financed. Many tax shelters involve a 100% seller financed purchase money mortgage loan. When the seller is related to the purchaser, these transactions invite the special close scrutiny of the Internal Revenue Service. Not only must the transaction run the gauntlet of the unstated interest rules of I.R.C. §§ 483, 1274, and 1274A, but, in addition, the *bona fides* of the purchase price may be questioned.

2. Financial Leverage and Increased Before-Tax Rate of Return

Even before considering the effect of taxes, leverage may increase the investor's rate of return on his equity investment. If an investor has the ability to borrow a portion of the purchase price of income producing property at a rate of interest less than the rate of return on the investment, he obtains what is known as financial leverage, increasing the rate of return on his equity. A simple example illustrates this principle. Assume that an investor has an opportunity to purchase for $100 a one-year certificate of deposit that will yield $10 per year and will still have a value of $100 at the end of the year. On an equity investment, the yield is obviously 10%. If, however, the investor is able to borrow $80 at 9% interest per year, reducing his equity investment to $20, he will increase his rate of return. By debt financing $80 of the cost, at 9% interest, he incurs an interest expense of $7.20, which reduces his net yield to $2.80. But on a $20 investment, a $2.80 yield is a 14% rate of return.

Financial leverage will not affect the rate of tax imposed on this investment. If the investor were in the 50% income tax bracket, his after-tax yield on an unleveraged investment of $100 would be $5.00, resulting in a 5.0% after-tax rate of return. On the leveraged investment of $20, his taxable income would be only $2.80, because interest is deductible. His net yield of $1.40 on a $20 investment produces an after-tax rate of return of 7%. In each case, for a taxpayer in the 50% marginal tax bracket, the after-tax rate of return is one half of the before-tax rate of return. Thus, the tax system reduces the yield to investors in both leveraged nondepreciable investments and unleveraged nondepreciable investments in proportion to the marginal tax rate. This does not hold true, however, when the investments are in depreciable property.

3. Tax Shelter Leverage

A taxpayer who debt finances depreciable property will pay a lower effective rate of tax on the income from the investment than will taxpayers who equity finance such investments. Thus, his after-tax rate of return will increase beyond that produced by financial leverage alone. This increase has been variously termed "tax shelter leverage" or "depreciation leverage." The mechanics by which "tax shelter leverage" operates will be illustrated in Part V of this article.

III. Analytical Methods for Evaluating Investments

A. *Cash Flows*

Meaningful evaluation of a potential real estate investment requires the application of time value of money analysis to the projected cash flow associated with the project. The first step in this process is to convert before-tax cash flow to after-tax cash flow.

Having done this, the tax advisor must then select the most appropriate analytical method. Any investment must be evaluated based on the cash flow that it generates. From this perspective it is the after-tax cash flow that is most important. Furthermore, the most important and reliable methods of evaluating investments are based on a time value of money analysis. Before-tax cash flow is relevant to the overall assessment of the proposed investment, but it is of little aid in determining the true profitability of the investment. The prime function of before-tax cash flow, standing alone, in evaluating the investment is to assist in determining the riskiness of the investment. If the before-tax cash flow is insufficient to service expenses, particularly loan amortization, then the investor may be called upon to make those payments out of other funds. If those other funds are tax savings generated by the investment, its desirability is lessened. If those other funds are the investor's income from other sources, the investment begins to look poor unless there is a good prospect of long term appreciation.

After-tax cash flow is determined by adding to the before-tax cash flow (which may be negative) the tax savings generated by the net taxable loss generated by the investment during the year, or by subtracting from the before-tax cash flow the taxes due on the net taxable income from the property during the year.

B. *The Time Value of Money: The Present Value Concept*

The analytical methods that take into account the time value of money give weight not only to the magnitude of the return measured in dollars but also consider the important question of when the investor receives his or her return. This recognizes the fact that in order to be equivalent a payment further removed in the future must be greater than a payment to be received currently: a dollar deferred a year is worth less than a dollar now. How much less is determined with reference to the taxpayer's discount rate.

The applicable discount rate may vary from investor to investor. For each investor the appropriate discount rate is the rate of return that could be earned on an alternative investment. Generally, it is safe to assume that the discount rate should not be less than the rate of interest available on U.S. government securities, which are essentially a riskless investment. The present value of a dollar deferred until a future year is determined by the following:

$$PV = \frac{FV}{(1 + r)^n}$$

r = discount rate
n = number of years of deferral
FV = future value

The formula for determining the future value of a dollar currently invested at compound interest is as follows:

$$FV = PV\ (1+r)^n$$

Using the formula for present value, if the applicable discount rate (r) is 10%, the present value of $100 to be received in two years is $82.64. Stated differently, using the formula for computing future value, $82.64 invested currently at 10% compound interest will grow to $100 at the end of two years. That growth, however, is before the effect of taxes is considered. Because income is taxed, the discount rate must be reduced to reflect the appropriate tax burden. This reduction is effected by multiplying the before-tax discount rate by one minus the taxpayer-investor's marginal rate of tax. For example, if

a taxpayer who is in the 42% marginal tax bracket could earn a 10% yield before taxes, his or her after-tax discount rate would be 5.8% (.10 x (1-.42)). It is the after-tax discount rate that is ultimately used in evaluating investments when reducing future cash flows to present value.

C. *Methods of Analysis Based on the Time Value of Money*

Among different analytical methods that take into account the time value of money, some are better than others. The adjusted (or external) rate of return analysis is generally superior. Both the net present value and internal rate of return methods of analysis also serve some useful functions.

1. Net Present Value Analysis

The net present value method of analysis evaluates a potential investment by reducing the series of cash flows associated with the investment to a single net present value, which takes into account both the amount and time period of each cash flow. When using this method of analysis the taxpayer's investment is treated as a negative cash flow. While the before-tax net present value of the cash flow may be relevant for some purposes, decision-making will ultimately turn on the net present value of the after-tax cash flows for each period, using the after-tax discount rate.

a. *Comparing Investments: Before-Tax Net Present Value*

The use of the net present value method can be illustrated by comparing three alternative investments as shown in Table I, all of which reflect before-tax results.

TABLE I

Year	Investment #1	Investment #2	Investment #3
0	($1,000)	($1,000)	($1,000)
1	0	500	0
2	200	500	0
3	300	500	0
4	500	500	0
5	2,500	500	3,650

Using a 10% before-tax discount rate, the net present value of Investment #1 is $1,284. The net present value of Investment #2 is $895, and the net present value of Investment #3 is $1,266. Any of the three investments would be better than the baseline alternative investment that determined the discount rate, and Investment #1 is clearly superior to Investment #2 and marginally better than Investment #3. This is so even though the undiscounted return on Investment #3 is the greatest of the three alternatives, and the cash flow from Investment #2 is the greatest over the first four years. The additional $500 of cumulative yield realized from Investment #1 by the end of Year 5 is more than sufficient to offset the timing advantage of Investment #2 over the first four years, but the $150 increased yield of Investment #3 relative to Investment #1 is not sufficient to offset its timing disadvantage.

b. *Comparing Investments: After-Tax Net Present Value — A Different Result*

To assess accurately the relative profitability of the three investments, however, the after-tax cash flows must be analyzed. The proper factor by which to reduce the before-tax cash flows to after-tax cash flows is the particular investor's marginal rate of tax. For a taxpayer in the (fictional) 40% marginal tax bracket, the after-tax cash flows from the three investments, assuming (somewhat, but not entirely, unrealistically) that the initial investment was fully deductible in computing taxable income in the year of the expenditure, would be as indicated in Table II.

TABLE II

Year	Investment #1	Investment #2	Investment #3
0	($600)	($600)	($600)
1	0	300	0
2	120	300	0
3	180	300	0
4	300	300	0
5	1500	300	2,190

When these after-tax cash flows are reduced to net present value by applying an after-tax discount rate of 6%, a different conclusion is reached regarding the relative desirability of the investments. The net present value of the cash flow from Investment #1 is $1,016. The net present value of Investment #2 is $663, and the net present value of Investment #3 is $1,036. Both Investment #1 and Investment #3 are more profitable than Investment #2, but Investment #3 is now marginally superior to Investment #1, reversing the conclusion obtained by analyzing the before-tax cash flows under the net present value method.

The reason that the conclusion differs from the immediately preceeding one is that on a before-tax basis the compound interest earned on the reinvestment of the cash flows obtained from Investment #1 in Years 2 through 4 was greater than the additional $150 of cumulative cash flow obtained from Investment #3. The timing advantage of Investment #1 more than offsets its cash flow disadvantage relative to Investment #3. On an after-tax basis, however, the compound interest earned by the reinvestment is insufficient to offset the greater cash flow from Investment #3. This is because taxation of interest income reduces the amount of compound interest earned on an investment by an amount greater than the before-tax interest multiplied by the investor's marginal rate of tax.

2. Internal Rate of Return Analysis

a. *The Theory*

The internal rate of return for an investment is the discount rate (interest rate) necessary to reduce to zero the net present value of the cash flows associated with the investment. Because there is no assumption of a discount rate, the after-tax internal rate of return may be computed directly by reducing the net present value of the after-tax cash flows to zero. To actually perform the computations generally requires a computer or sophisticated calculator, although computations may be made with pencil, paper, tables, and tedious labor.

b. *Comparison With Net Present Value Analysis*

Internal rate of return analysis and net present value analysis frequently produce results that lead to the same decision regarding the desirability of alternative investments, but this is not always true. For example, the internal rates of return for the three investments described in Table I and analyzed using the net present value method in the preceding section are as follows: Investment #1, 33.03%; Investment #2, 42.04%; and Investment #3, 32.6%.

Internal rate of return analysis indicates that Investment #2 is clearly superior to Investments #1 and #3. This conclusion is directly contradictory to the conclusion reached using net present value analysis, which indicated that both Investment #1 and Investment #3 were clearly superior to Investment #2. (Because the entire investment was assumed to be immediately deductible, these rates of return represent both the before- and after-tax internal rates of return. For equity financed property the cost of which is not immediately expensed for tax purposes, the after-tax internal rate of return will always be less than the before-tax internal rate of return.)

c. *The Deceptive Underlying Assumption*

The reason that the internal rate of return method and the net present value method may produce conflicting results lies in the assumptions on which the different methods are based. The net present value method of analysis assumes that positive cash flows from the investment are reinvested at an assumed rate of interest (equal to the discount rate) that is determined with respect to a known alternative investment, such as government bonds. Internal rate of return analysis assumes that positive cash flows from the investment are reinvested at the same rate of return that is produced by the investment being analyzed. This is one of the weaknesses of relying on internal rate of return analysis. It may overstate the desirability of an investment if the investor cannot reinvest cash flows in an equivalent investment.

d. *Multiple Internal Rates of Return*

Another problem that sometimes arises when using internal rate of return analysis is that a series of cash flows may be reduced to zero by more than one discount rate. Thus, there may be multiple internal rates of return for the cash flow. (In addition, a cash flow may have both a positive and a negative internal rate of return.) This phenomenon occurs when an investment has negative cash flows alternating with positive cash flows, including a pattern that has negative cash flows in the first and last years. This pattern of cash flows is one that easily may be associated with a tax shelter investment, so caution is necessary if using internal rate of return analysis.

3. Adjusted Rate of Return Analysis

"Adjusted rate of return" or "external rate of return" is the compound rate of interest earned on the original investment after investing all positive cash flows at the discount rate used by the investor to determine net present value. If they occur, negative cash flows in years subsequent to the year of investment must be taken into account. The appreciation expected from the asset is important, because the net proceeds from the sale of the asset represent an important cash flow item. Computation of the adjusted rate of return provides a return percentage that the investor can compare with the

portfolio rate of return to determine if the yield from the potential new investment is sufficiently greater than the yield from the portfolio investment to warrant any increased risk. It also can be used to compare the attractiveness of alternative real estate or other tax shelter investments.

The adjusted rate of return is computed in the following manner. First, calculate the future value of the positive cash flows resulting from the potential new investment, using the investor's discount rate, as of the end of the investment period — the expected date of disposition of the investment. For this purpose, the negative cash flow from the initial investment is not included in the cash flows that are adjusted to future value. In addition, any negative cash flow in any future year is discounted to present value using the investor's discount rate and treated as an additional investment.

Second, the future values of the cash flows are then summed to yield the aggregate future value of the investment. Finally, the compound rate of interest on the investment is computed based on the known future value just determined, the present value, which is the investment plus the discounted value of future negative cash flows, and the number of periods of compounding, which is the life of the investment. The resulting interest rate is the interest rate that it would be necessary for the investor to earn on a portfolio investment for a portfolio investment to be as profitable as the potential new investment will be if all net cash flow were reinvested in a portfolio investment earning the discount rate.

The computation of the adjusted rate of return can be illustrated with reference to the after-tax cash flow from the investments illustrated in Table IIIA. Tables IIIA–IIIC show the future value of positive cash flows at the end of the five-year period using a 6% after-tax discount rate. There are no negative cash flows to be discounted to present value in this example. (Discounting future negative cash flows to net present value is illustrated in Table XI.)

TABLE IIIA

INVESTMENT #1

Year	Cash Flow	Compounding Periods	Future Value (Present Value)
0	($600)	0	($600)
1	0	4	0
2	120	3	143
3	180	2	202
4	300	1	318
5	1500	0	1500

The sum of the positive future values for Investment #1 is $2,163. Thus this investment is viewed as a $600 investment that grows to be $2,163 in five years. The compound annual rate of interest that yields this result is 29.23%.

Table IIIB shows that for Investment #2 the future value of the positive cash flow is $1,688. On an initial investment of $600, this is the amount produced by an annual compound interest rate of 22.98%.

Investment #3, illustrated in Table IIIC, has a future value of $2,190. Six hundred dollars grows to that amount in five years at an annual interest rate of 29.55%.

Adjusted rate of return analysis demonstrates that Investments #1 and #3 are clearly superior to Investment #2, and Investment #3 is marginally superior to #1. This is consistent with the rank ordering of the investments obtained using the net present

TABLE IIIB

INVESTMENT #2

Year	Cash Flow	Compounding Periods	Future Value (Present Value)
0	($600)	0	($600)
1	300	4	376
2	300	3	357
3	300	2	337
4	300	1	318
5	300	0	300

TABLE IIIC

INVESTMENT #3

Year	Cash Flow	Compounding Periods	Future Value (Present Value)
0	($600)	0	($600)
1	0	4	0
2	0	3	0
3	0	2	0
4	0	1	0
5	2,190	0	2,190

value method of analysis. In both cases, however, the marginal superiority of Investment #3 may be negated if it is substantially less liquid than Investment #1.

Adjusted rate of return analysis is superior to both net present value analysis and internal rate of return analysis. Because under the adjusted rate of return method net positive cash flow is treated as if it were reinvested at the portfolio rate of return, the distortionary reinvestment yield assumption of internal rate of return analysis is eliminated. Adjusted rate of return analysis is superior to net present value analysis because the future value of reinvested cash flow can be computed for any number of years, thereby facilitating comparisons of investments with differing terms, and, more particularly, providing a yield percentage that unlike the net present value of a particular investment is directly comparable to the investor's portfolio rate of return. Finally, adjusted rate of return analysis may be used to compare directly alternative investments of differing amounts, while net present value analysis cannot be used to make such comparisons.

IV. THE CONVERGENCE OF THE TAX SHELTER TRIAD: NEGATIVE TAXATION OF INVESTMENTS IN DEPRECIABLE PROPERTY

A simplified model of an investment in depreciable property demonstrates that debt financed depreciable property may produce an after-tax yield greater than its before-tax yield. This result can never be achieved if the acquisition is entirely equity financed. Most real estate investments require some equity investment, but may be sufficiently debt financed to produce an after-tax yield greater than the before-tax yield. After demonstrating how the "depreciation leverage" principle suggested by the simple model applies to a hypothetical real estate investment, this section examines the application of time

value of money financial analysis to determine the profitability of the hypothetical real estate project.

A. *The Simple Model*

An investor who debt finances the acquisition of depreciable property will pay a lower effective rate of tax on the income from the investment than will an investor who equity finances such an investment. This lower effective tax rate increases the after-tax rate of return beyond the increase produced by financial leverage alone. The increased yield beyond financial leverage has been variously termed "tax shelter leverage" or "depreciation leverage." This principle can be illustrated quite simply by two examples drawn from my article, *Reforming Cost Recovery Allowances For Debt Financed Depreciable Property*, in Volume 29 of SAINT LOUIS UNIVERSITY LAW REVIEW.

Assume that two taxpayers, *E* and *D*, each acquire an identical depreciable asset on December 31st of Year 0. *E* entirely equity finances the purchase; *D*, on the other hand, finances the purchase by investing $40 of equity and borrowing $60, at 10% interest, payable in four equal installments of $18.93 on the last day of each year. The asset yields $31.55 of gross income annually and economically depreciates at what sometimes is called the "sinking fund rate of depreciation," having no value at the end of four years. (The sinking fund method of depreciation is the analogue of loan principal amortization.) The before-tax rate of return on this asset is 10%. If, for tax purposes, depreciation is allowed under the straight line method, and both *D* and *E* were in the 40% tax bracket, the computation of the tax liabilities and cash flows for both *D* and *E*, assuming that no other expenses were incurred, would be as shown in Tables IV and V.

Although the before-tax internal rate of return for the equity financed investment is 10%, the after-tax internal rate of return has been decreased only to 6.11%, instead

TABLE IV

EQUITY INVESTMENT

Year	Gross Income	Depreciation	Taxable Income	Tax	After-Tax Net Cash
0	0	0	0	0	($100.00)
1	$31.55	$25.00	$6.55	$2.62	28.93
2	31.55	25.00	6.55	2.62	28.93
3	31.55	25.00	6.55	2.62	28.93
4	31.55	25.00	6.55	2.62	28.93

TABLE V

DEBT FINANCED INVESTMENT

Year	Gross Income	Depre-ciation	Interest	Loan Amorti-zation	Taxable Income	Tax	Before-Tax Net Cash	After-Tax Net Cash
0	0	0	0	0	0	0	0	($40.00)
1	$31.55	$25.00	$6.00	$12.93	$ .55	$ .22	$12.62	12.40
2	31.55	25.00	4.71	14.22	1.84	.74	12.62	11.88
3	31.55	25.00	3.28	15.64	3.27	1.31	12.62	11.31
4	31.55	25.00	1.72	17.21	4.83	1.93	12.62	10.69

of the expected 6.0% for a taxpayer in the 40% bracket. This is due to the availability of tax depreciation at a rate (straight line) in excess of economic depreciation (sinking fund), and this reflects the familiar principle that allowing accelerated depreciation has the effect of reducing the rate of tax on income from depreciable property. This principle itself is merely a variant of the principle that deferral results in a reduction in the effective rate of tax.

The internal rate of return for the debt financed asset, however, is 6.26%. The source of this additional .15% yield relative to the equity financed investment was not financial leverage; there was no financial leverage associated with this investment before taxes because both the loan interest rate and the before-tax yield on the investment (if equity financed) were 10%. The increased after-tax yield from the debt financed investment resulted from additional deferral not available with respect to the equity financed asset. The investor has claimed depreciation deductions on the debt financed portion of the basis of the property at a rate more rapid than the rate at which the purchase money loan is being amortized. In essence, he is receiving deductions in an earlier year for expenditures that are not really incurred until the later year in which the loan is repaid.

The advantage of debt financing the acquisition of depreciable property is not limited to reducing the effective rate of tax to a level below the statutory rate. Accelerated depreciation combined with debt financing of a significant portion of the purchase price may result in the reduction of the effective rate of tax to below zero. The more highly accelerated the depreciation allowances permitted under the tax system, the less leverage is needed to produce a negative rate of tax.

Assume that *D*, instead of debt financing only 60% of the purchase price of the asset in the preceding example, debt financed the entire purchase price. The consequences of this transaction would be as shown in Table VI.

TABLE VI

Year	Gross Income	Depreciation	Interest	Loan Amortization	Taxable Income	Tax	Before-Tax Net Cash	After-Tax Net Cash
0	0	0	0	0	0	0	0	0
1	$31.55	$25.00	$10.00	$21.55	($3.45)	($1.38)	0	$1.38
2	31.55	25.00	7.85	23.70	(1.30)	(.52)	0	.52
3	31.55	25.00	5.47	26.08	1.08	.43	0	(.43)
4	31.55	25.00	2.87	28.68	3.68	1.47	0	(1.47)

Before taxes, this investment would produce neither a gain nor a loss, nor a positive or negative cash flow, either annually or in the aggregate. Because of the tax arbitrage profits available through tax shelter leverage, deferral by claiming depreciation deductions at a rate more rapid than purchase money loan amortization, however, the investment produces an after-tax profit. The excess deductions in the first two years allow the taxpayer to reduce taxes that otherwise would be imposed on his other income. Although the first two years' tax savings would be recaptured in the last two years, they could have been invested in the interim. Using a 6% after-tax discount rate, the net present value of the cash flow in Table VI is $.24. The profits to be made from the investment in the preceding example appear trivial because the depreciation allowances are only very slightly accelerated and the investment is small, but the example serves to illustrate the principle.

B. *The Classic Real Estate Tax Shelter*

In reality, the tax arbitrage profits available from deferral are substantial because under the ACRS cost recovery system, the cost of depreciable real estate is deducted over nineteen years, while the actual economic life of the property approaches forty or fifty years in many instances. Thus, even though, unlike the preceding example, most real estate investments require some equity investment, nevertheless, most real estate projects will be more profitable after taxes than they are before taxes because of the deferral effected by the combination of highly accelerated depreciation and a highly leveraged basis. Consider the following example of a hypothetical real estate investment.

On January 1 of Year 1, Investor purchases a depreciable building for $125,000, leasing rather than purchasing the land on which the building is located, so as to be able to deduct the cost of the land. Investor makes an equity investment of $25,000 and debt finances the balance of the purchase price. The $100,000 loan bears interest at 12% per annum and is amortized by level payments over twenty years. After payment of all deductible expenses other than purchase money loan interest, the net rentals from the property are $14,713 per year. If the investor is in the 50% marginal income tax bracket, the cash flows associated with this investment over the first twenty years are as shown in Table VII.

TABLE VII

Year	Net Rent	ACRS	Interest	Principal	Before Tax Cash	Taxable Income	Tax	After Tax Cash
Jan. 1					($25,000)			($25,000)
Dec.31	$14,713	$11,250	$11,931	$1,282	1,500	($8,468)	($4,234)	5,734
2	14,713	11,250	11,768	1,445	1,500	(8,305)	(4,152)	5,652
3	14,713	10,000	11,585	1,628	1,500	(6,872)	(3,436)	4,936
4	14,713	8,750	11,378	1,834	1,500	(5,415)	(2,707)	4,207
5	14,713	8,750	11,146	2,067	1,500	(5,183)	(2,591)	4,091
6	14,713	7,500	10,884	2,329	1,500	(3,671)	(1,835)	3,335
7	14,713	6,250	10,588	2,624	1,500	(2,125)	(1,062)	2,562
8	14,713	6,250	10,256	2,957	1,500	(1,793)	(896)	2,396
9	14,713	6,250	9,880	3,332	1,500	(1,417)	(708)	2,208
10	14,713	6,250	9,458	3,755	1,500	(995)	(497)	1,997
11	14,713	6,250	8,982	4,231	1,500	(519)	(259)	1,759
12	14,713	6,250	8,445	4,768	1,500	18	9	1,491
13	14,713	5,000	7,840	5,372	1,500	1,873	936	564
14	14,713	5,000	7,159	6,054	1,500	2,554	1,277	223
15	14,713	5,000	6,391	6,822	1,500	3,322	1,661	(161)
16	14,713	5,000	5,526	7,687	1,500	4,187	2,093	(593)
17	14,713	5,000	4,551	8,662	1,500	5,162	2,581	(1,081)
18	14,713	5,000	3,453	9,760	1,500	6,260	3,130	(1,630)
19	14,713		2,215	10,998	1,500	12,498	6,249	(4,749)
20	14,713		820	12,392	1,500	13,893	6,946	(5,446)
					$5,000	$5,000	$2,500	$2,500

(This Table was prepared prior to the amendment to I.R.C. § 168 extending the cost recovery period for real estate to nineteen years, but it will serve adequately to illustrate all of the principles to be discussed in the remainder of this article.)

Table VII shows only the operating cash flows. To determine the overall profitability of the investment, it is necessary to assume that the property will be sold at a particular point in time and to make a further assumption regarding the price for which the

property will be sold. Both the future sales price and the projected operating income involve a substantial dose of fortune-telling, and any tax analysis of an investment will be no more valid than the assumptions regarding the before-tax performance of the investment. (This article does not purport to examine the criteria for evaluating the validity of projections of the before-tax economic performance of real estate investments.)

Many real estate tax shelter offering circulars make projections regarding the price that may be obtained upon the sale of the property at some time in the future. These projections should not necessarily be accepted as gospel, but several alternative projections should be considered. The net present value of the cash flows, the internal rate of return, and the adjusted rate of return for each of the projections should be calculated. These results then can be used to assess the tax economics of the investment, after factoring in risk as to both economic projections and the availability of the expected tax benefits if challenged by the Internal Revenue Service.

Tables VIII through X illustrate a number of financial projections with respect to the real estate project, the operating income and cash flow projections of which were illustrated in Table VII. These tables show the before-tax internal rate of return, the after-tax internal rate of return, assuming both that there is recapture under I.R.C. § 1245 because the building is a commercial building and that there is no recapture because the building is an apartment building, the before-tax net present value of the cash flow at a 10% discount rate, the after-tax net present value of the cash flow at a 6% discount rate, and the after-tax net present value for a taxpayer with a 10% after- tax

TABLE VIII

FINANCIAL ANALYSIS OF
TWENTY YEAR CASH FLOW

BEFORE TAX

Sales Price	IRR	NPV (10%)
$ 0	1.80%	($12,230)
25,000	6.00%	(8,514)
100,000	10.79%	2,635
125,000	11.68%	6,351
150,000	12.53%	10,067
250,000	14.90%	24,931

TABLE IX

AFTER TAX
WITH §1245 RECAPTURE

Sales Price	After tax Proceeds of Sale	IRR	NPV (5%)	NPV (10%)
$ 0	$ 0	8.51%	$1,939	($919)
25,000	12,500	11.01%	6,650	938
100,000	50,000	14.22%	20,783	6,512
125,000	62,500	14.90%	25,494	8,370
150,000	77,500	15.58%	31,148	10,600
250,000	162,500	18.23%	63,183	23,235

Table X
AFTER TAX
WITH NO RECAPTURE

Sales Price	AfterTax Proceeds of Sale	IRR	NPV (5%)	NPV (10%)
$ 0	$ 0	8.51%	$ 1,939	($919)
25,000	20,000	11.91%	9,477	2,053
100,000	80,000	15.69%	32,090	10,972
125,000	100,000	16.44%	39,628	13,945
150,000	120,000	17.09%	47,166	16,918
250,000	200,000	19.04%	77,317	28,809

discount rate (still computing taxes at the 50% marginal rate), based on six different assumptions regarding the price for which the property will be sold at the end of twenty years. This example and all other computations of the net after-tax proceeds realized on a sale of the investment arbitrarily (and unrealistically) ignore the basis and sales proceeds attributable to the lease of the land.

Even a cursory examination of Tables VIII through X reveals that for an investor in the 50% marginal income tax bracket at any sales price, even if the property is abandoned as worthless at the end of twenty years, the investment is more profitable after tax than before tax. The internal rate of return and the net present value of the cash flow resulting from every assumed sales price is greater after tax than before tax. The lower the assumed sales price, the more significant the difference between the before-tax return and the after-tax return. From this we know that the investment bears a negative rate of tax and is a tax shelter. That alone, however, does not tell us whether or not it will be a better investment than all other alternatives.

It is important to remember that these tables were prepared for an investor in the 50% marginal tax bracket. Because a taxpayer in a lower tax bracket using the same before-tax discount rate will have a higher after-tax discount rate, the tables must be recomputed to analyze the investment for an investor in the lower marginal tax bracket. Indeed, the cash flow table (Table VII) itself varies for investors in different marginal tax brackets and must be computed separately for taxpayers facing different marginal brackets. For investors in lower tax brackets, the cash flow tends to be more level. The positive cash flow in the early years is not as great as in later years, but then neither is the negative cash flow in the later years as great as in earlier years. As a result the net present value of the investment will be less than it will be for an investor in a higher marginal tax bracket.

V. EVALUATION OF A PROPOSED REAL ESTATE TAX SHELTER INVESTMENT

Any prospective real estate investment, such as the hypothetical investment described in Section IV. B, should be analyzed using methods described in section III. Some commonly used unsophisticated methods are unreliable and should be avoided. In addition, the profitability of any prospective real estate investment should be reassessed under the alternative scenarios, taking into consideration risks, such as actual cash flow varying from that originally predicted and premature disposition of a property. Finally, any prospective real estate investment should be compared to alternative investments

using a consistent analytical method. All of this analysis must be done with reference to the particular investor's tax profile.

A. *Inferior Methods of Analysis*

Some elementary, relatively unsophisticated methods of analysis sometimes applied to tax shelter investments are actually of little value. These methods fail to take into account the time value of money. The two most prominent such methods are sometimes called the "payback method" and the "return on investment method."

1. Return on Investment

The return on investment method looks to the ratio of the after-tax cash flow to the investment. For example, using the three investments described in Table II, the return on investment method produces the following ratios: Investment #1, 3.5 to 1; Investment #2, 2.5 to 1; and Investment #3, 3.65 to 1. Ranking these investments leads to the conclusion that Investment #3 is the superior investment, which is exactly the same conclusion that was reached using net present value analysis. But if the $2,190 return on investment #3 in Year 5 were delayed one year, until Year 6, while the timing of the other cash flows remained unchanged, a revised net present value analysis will tell us that Investment #1 is now the superior investment. The net present value of Investment #1 over six years will be $1,016; the net present value of Investment #3 over six years will be $944. The results of return on investment analysis, however, remain unchanged: Investment #3 deceptively appears to be the best investment.

2. Payback Period

Another relatively unsophisticated method of analysis is the payback method. The object of this method of analysis is to determine the number of years necessary to obtain a return of the original investment. The more rapid the payback, the superior the investment. Under this method, the superior investment in Table II is Investment #2, which is clearly the least desirable of the three investments under the net present value method of analysis.

This is not to say that the computation of the payback period is irrelevant in assessing a prospective real estate tax shelter investment. It is highly relevant in assessing risk factors, portfolio mix, and the liquidity of the investment. The more rapid the payback, the lower the risk and the higher the liquidity of the investment. These factors may be important, and they must be considered.

B. *Time Value of Money Analysis of Cash Flows*

1. Net Present Value of Cash Flows

Although the internal rate of return on the hypothetical real estate investment shown in the above tables may be relevant for some purposes — for example, an after-tax internal rate of return greater than the before-tax internal rate of return is the hallmark for identifying an investment as a tax shelter — internal rate of return analysis does not always serve as the best measure by which to compare alternative investments, as was illustrated in Part III. Net present value analysis, using a discount rate based on the return available to alternative portfolio investments, is a preferable method. The net

present value of the cash flow from the proposed tax shelter investment should be compared to the net present value of the portfolio investment. The tax shelter investment is more desirable only if its net present value is greater than the net present value of the portfolio investment, after taking into account the risks and uncertainties of the tax shelter investment that are not inherent in the portfolio investment. This does not mean that the discount rate used in the financial analysis of the real estate tax shelter should be modified to reflect those risks, but that the risks and uncertainties must be weighed in determining if the return from the tax shelter is sufficiently higher than the return from the portfolio investment to justify investment in the tax shelter.

Examination of the net present value of the cash flows from the hypothetical real estate tax shelter investment set forth in Tables IX and X reveals that at any sales price the real estate tax shelter will be more profitable than the alternative portfolio investment if the taxpayer uses a 5% after-tax discount rate. If, however, the investor uses a 10% after-tax discount rate (a 20% before-tax discount rate) there must be some, albeit minimal, residual value to the real estate investment at the end of twenty years for it to be more profitable than the portfolio investment. Since the return on the portfolio investment was used to set the discount rate, the net present value of the portfolio investment is zero. Any analysis of an alternative real estate investment that produces a positive net present value indicates that it will be the more profitable investment. The extent to which the hypothetical real estate investment is more profitable than the portfolio investment is almost entirely independent of the price for which the property can be sold, however, assuming that the property is held for twenty years — until the mortgage is paid off (which is in many cases an unrealistically long holding period) — and that the real estate investment produces the assumed cash flows.

2. Adjusted Rate of Return Analysis

Simply because the real estate investment has a positive net present value using the discount rate determined with reference to the portfolio rate of return (discount rate) does not necessarily mean that it is the more desirable investment. The portfolio investment that is used to determine the discount rate is low risk portfolio securities. Greater risks and uncertainties attach to the real estate tax shelter investment. The potential investor must decide whether or not the particular real estate investment will be sufficiently more profitable than the portfolio investment to warrant incurring any of those increased risks. Although the risk factor cannot be quantified in an index number, the profitability of the real estate investment can be quantified by comparing the adjusted rate of return from the investment with the investor's portfolio rate of return. Adjusted rate of return is a far more reliable reference point than is the internal rate of return and it may be applied more easily to compare investments with differing lifetimes than may be net present value analysis.

The computation of the adjusted rate of return for the real estate investment described in Table VII is illustrated in Table XI. This Table shows the future value of positive cash flows at the end of the twenty-year period and the present value of negative cash flows, using a 5% after-tax discount rate. The Cash Flow column in this table is derived from the last column of Table VII.

The sum of the positive future values is $85,753. The sum of the present values of the future negative cash flows is $5,434. This latter amount is added to the $25,000 initial investment to produce a total investment of $30,434 that grows to $85,753 at the end of twenty years. This growth indicates a compound rate of interest — the adjusted

TABLE XI

Year	After-Tax Cash Flow	Compounding Periods	Future Value (Present Value) (5%)
1	$5,734	19	$14,489
2	5,652	18	13,602
3	4,936	17	11,313
4	4,207	16	9,183
5	4,091	15	8,505
6	3,335	14	6,603
7	2,562	13	4,702
8	2,396	12	4,303
9	2,208	11	3,776
10	1,997	10	3,253
11	1,759	9	2,729
12	1,491	8	2,203
13	564	7	793
14	223	6	299
15	(161)	(15)	(77)
16	(593)	(16)	(272)
17	(1,081)	(17)	(472)
18	(1,639)	(18)	(677)
19	(4,759)	(19)	(1,883)
20	(5,446)	(20)	(2,053)

rate of return — of 5.32%, assuming that the investment has no residual value at the end of twenty years. On this assumption, the yield is only slightly better than the yield on a portfolio investment, which is 5% after-tax for an investor in the 50% marginal tax bracket.

As with all other methods, in order to do a thorough analysis, it is necessary to project the future sales price, the taxes that will be paid upon the sale, and the net proceeds of the sale. If the sale results in a positive cash flow, the amount should be added to the sum of the positive cash flows, without any adjustment for timing. If the sale produces a negative cash flow (because taxes exceed net cash), the negative cash flow should be discounted to present value and treated as an additional investment.

For example, if the property were commercial real estate subject to section 1245 recapture, a sale at $125,000 — the original purchase price — would yield a positive cash flow of $62,500 after taxes. (*See* Tables VIII and IX.) This should be added to the previously determined future value of operating income of $85,753 to yield a total future value cash flow of $148,253. The initial investment would be unchanged and the adjusted after-tax $148,253. The initial investment would be unchanged and the adjusted after-tax rate of return will increase to 8.24%. This is significantly better than the yield on a portfolio investment. Similar calculations should be made for other assumed sales prices, being certain to properly reflect the portion of the gain that is recapture income and the portion that is entitled to section 1231 treatment.

C. *Reassessment of Relative Profitability After Taking Risk Into Account*

1. Varying the Assumptions

To thoroughly assess the economic viability of a prospective real estate tax shelter investment, it is important to analyze the profitability of the investment, assuming that

the cash flows are different than originally predicted. If the net rentals, after payment of all expenses other than debt service, are less than originally expected, the investment obviously will be less profitable than projected. How much less profitable? Reanalysis entails reducing the before-tax cash flow, recomputing taxable income, taxes, and after-tax cash flow, and finally, conducting a new present value analysis and recomputing the adjusted rate of return for the reduced cash flows.

For example, if the net rental income received before taking into account debt service in the hypothetical investment as set forth in Table VI were reduced to $14,713 annually — an amount exactly sufficient to meet the mortgage payments — there would be no net before-tax cash flow associated with the investment over the twenty years that the mortgage was to be paid. Taxable losses in the first twelve years would be increased by $1,500 annually, tax savings (for a taxpayer in the 50% bracket) would be increased by $750 annually, giving the appearance of a bigger shelter, but after-tax cash flow would be reduced by $750 annually. As a result, the net present value of the cash flows associated with the property will be less at any given sales price. Table XII shows the net present values of the investment at the assumed sales prices previously used in Tables VIII and IX, assuming that the property is commercial real estate, subject to section 1245 recapture upon the sale of the building.

TABLE XII

Sales Price	After tax Proceeds of Sale	NPV (5%)	NPV (10%)
$ 0	$ 0	($7,181)	($7,133)
25,000	12,500	(2,470)	(5,276)
100,000	50,000	11,663	299
125,000	62,500	16,374	2,157
150,000	77,500	22,028	4,386
250,000	162,500	53,837	16,850

Under these assumptions, the investment will be somewhat less attractive to an investor using a 5% after-tax discount rate, and considerably less attractive to an investor using a 10% after-tax discount rate, than it would have been under the higher cash flow assumption. For a taxpayer using a 10% after-tax discount rate, the net present value of the cash flow is negative unless the property can be sold for close to $100,000 at the end of twenty years ($96,000 to be precise). If the investor is using only a 5% after-tax discount rate, the net present value is negative unless the property can be sold for approximately $36,000 after twenty years.

When the cash flow assumptions are changed, the adjusted rate of return must be recomputed. This necessitates constructing an entirely new table of future values based on the new after-tax cash flows. Table XIII illustrates that using this new cash flow assumption, the future value of the operating income of the hypothetical real estate tax shelter would be reduced to $66,694, while the present value of the negative cash flows would increase to $7,747. Using these numbers, an investment of $32,747 grows to $66,694, assuming that the property is worthless at the end of twenty years. The adjusted rate of return will be only 3.62%, which is very clearly quite inferior to the portfolio rate of return.

But if the property were rental residential property and could be sold for $125,000 at the end of twenty years, producing an additional positive after-tax cash flow of $62,500

TABLE XIII

Year	After-Tax Cash Flow	Compounding Periods	Future Value (Present Value) (5%)
1	$4,984	19	$12,594
2	4,902	18	11,797
3	4,186	17	9,594
4	3,457	16	7,546
5	3,342	15	6,948
6	2,885	14	5,712
7	1,813	13	3,419
8	1,646	12	2,956
9	1,459	11	2,496
10	1,247	10	2,031
11	1,010	9	2,031
12	741	8	1,094
13	(186)	(13)	(99)
14	(527)	(14)	(266)
15	(911)	(15)	(438)
16	(1,343)	(16)	(646)
17	(1,831)	(17)	(799)
18	(2,380)	(18)	(988)
19	(5,499)	(19)	(2,176)
20	(6,196)	(20)	(2,335)

in Year 20, the investment is a $32,747 investment that grows to $129,194 at the end of twenty years. Under these assumptions, the investment has an after-tax adjusted rate of return of 7.1%, compared with a 5% return on a portfolio investment. Therefore, the extent to which the real estate property holds its value will be of importance in determining its desirability.

2. Analyzing the Effect of a Premature Disposition

In reality, it is rare that a real estate tax shelter investment, despite the illiquidity of investments in the form of interests in limited partnerships holding depreciable real property, will be held for twenty years. Most investors begin to think about disposing of the investment at the crossover point — the year in which the investment begins to show taxable income in excess of positive before-tax cash flow — if not earlier, when the shining star of paper deductions begins to fade away. The after-tax cash flow that results from a disposition at this time will be considerably different from that which results from holding the investment, and despite the apparent attractiveness of disposing of the fading tax shelter, the early disposition may in fact result in reducing the projected value of the tax shelter investment.

Upon the disposition, the investor will recognize gain equal to the excess of the sales price over his adjusted basis in the property. The sales price will include not only any cash received, but also the balance due on any mortgages on the property if the property is transferred subject to the mortgage (or even if the property is transferred to the mortgagee by abandonment or foreclosure). Even if the disposition is by an installment sale under § 453, the amount of the mortgage, if in excess of the basis, will trigger the recognition of gain in the year of disposition. In addition, under I.R.C. § 453(i), any recapture income must be recognized in the year of disposition. Because ACRS deductions reduce the adjusted basis of the property at a rate much more rapid than the rate

of principal amortization of most purchase money mortgages, the gain recognized on the disposition of a real estate tax shelter almost invariably will be much greater than the cash profit. This "phantom gain" may result in a significant tax liability in the year of disposition. Unless the property has appreciated in value, the tax liability incurred as a result of the sale may exceed the net cash proceeds realized from the sale, thereby accelerating the negative cash flows associated with the declining years of a tax shelter after the crossover point.

Assume, for example, that the hypothetical real estate tax shelter that this article has been analyzing was sold at the end of Year 12, the last year in which the before-tax cash flow exceeds taxable income. At that point, the investor has claimed $95,000 of ACRS deductions, which has reduced the adjusted basis of the property to $30,000. The investor has paid only $32,252 on the loan principal, leaving $67,748 due on the mortgage at that time. As a result, on any disposition the gain realized will exceed the cash received by $37,748, the amount by which the mortgage balance exceeds the investor's adjusted basis.

This "phantom gain" will result in a tax liability the exact amount of which depends on the investor's tax bracket at the time of the sale and the extent to which the gain realized on the disposition is recapture income. In this context, it must be kept in mind that section 1250 recapture will most certainly apply to some extent on any sale of residential rental property prior to the end of the nineteen-year cost recovery period.

Upon a sale at the end of Year 12 of the hypothetical real estate investment, only $11,667 of the gain would be section 1250 recapture income; the balance of any gain would be section 1231 gain if the building were residential rental property. If the building was commercial property, however, $95,000 of the gain would be section 1245 recapture income. Only the gain in excess of that amount would be section 1231 gain.

Because income taxes must be paid on the phantom gain, much of the deferral disappears and the tax benefits of the transaction based on deferral are significantly reduced. Because the cash proceeds of the sale (the sales price minus the outstanding mortgage balance) are less than the amount realized for computing gain, it is possible for the taxes attributable to the gain to be in excess of the net cash received on the sale. In these circumstances, the overall profitability of the investment relative to a portfolio investment depends on the extent to which the real estate investment has appreciated or held its value. The real economics of the transaction become more important, and from a tax perspective, the conversion associated with investment in residential rental property, which is not available for an investment in commercial real estate, may make the difference between a desirable and an undesirable investment.

Tables XIV and XV show the net after-tax cash received on a sale of the hypothetical real estate investment at the end of Year 12 and the resulting net present value of the cash flow for the full twelve years that the taxpayer held the investment. These tables assume that the investor is in the 50% marginal tax bracket and the property is residential rental property and, alternatively, commercial property. The alternative sales prices used to analyze a sale at the end of twenty years are used again, except that the lowest sales price is $67,748, the balance due on the mortgage, which is the minimum amount realized. (*See Commissioner v. Tufts*, 461 U.S. 300 (1983); I.R.C. § 7701(g)). In selecting which sales price is more realistic, however, the difference in timing of the sale must be considered.

These tables reveal that if the property is residential rental property, at any sales price the investment again will be more profitable than the portfolio investment. On the

TABLE XIV

COMMERCIAL BUILDING
WITH §1245 RECAPTURE

Sales Price	Net Sales Price	Gain	Tax	Net Cash	12 Year 5% NPV
$ 67,748	$ 0	$ 37,748	$18,874	($18,874)	($3,553)
100,000	32,252	70,000	35,000	(2,748)	5,426
125,000	57,252	95,000	47,500	9,752	12,387
150,000	82,252	120,000	52,500	29,750	23,523
250,000	182,252	220,000	72,500	109,750	68,070

TABLE XV

RESIDENTIAL RENTAL PROPERTY
WITH §1250 RECAPTURE

Sales Price	Tax	Net Cash	12 Year 5% NPV
$ 67,748	$11,050	($11,050)	$ 803
100,000	17,501	14,751	15,711
125,000	22,501	34,751	26,308
150,000	27,501	54,751	37,444
250,000	47,500	134,752	81,992

other hand, if the property is commercial property, the net present value of the cash flow is negative if the property is sold for $67,748 — the outstanding balance on the mortgage. It will be much more important that the property hold its value in order for the real estate investment to be more profitable than the portfolio investment if it is commercial real estate. But it is equally clear that the property need not retain its value fully. If the value of the property were to fall to $100,000, a sale at that price after twelve years still produces a positive net present value, and the investment would be more profitable than a portfolio investment would have been.

A cursory comparison of the preceeding tables, showing the net present value of the cash flows resulting from a sale at the end of twelve years, with Tables VIII, IX, X, showing the net present values of the cash flows resulting from a sale at the end of twenty years, may give the misleading impression that at most assumed prices, the tax shelter will not be as profitable if it is held for twenty years and sold at that later date for the same price. While this may sometimes be true, it is not necessarily true.

Tables XIV and XV compound interest earned on positive cash flows for only twelve years, while the earlier tables compounded cash flows for twenty years. More importantly, Tables VIII, IX, and X reflect negative cash flows in some of these later years, largely due to the payment of taxes on amounts paid as mortgage loan principal amortization. Those tax detriments are reflected much earlier in Tables XIV and XV, as the phantom gain attributable to the excess of the mortgage over the basis when the property is sold in Year twelve. In present value terms, therefore, the negative cash flows associated with the investment are greater if the property is sold under the circumstances prevailing in the examples illustrated in Tables XIV and XV. Therefore, the earlier tables almost invariably show a higher net present value unless the real estate appreciates dramatically,

in which case the latter tables may show a higher net present value. Each investment, however, must be evaluated independently under the appropriate alternative assumptions to determine its profitability.

Furthermore, because the negative cash flows associated with future years of an investment are economically equivalent to an additional investment, in present value terms, the proper yardstick for comparing investments is the adjusted rate of return, not the net present value method. Differing assumptions regarding the year of disposition and the net after-tax cash realized on the disposition may alter the amount and timing of negative cash flows associated with the investment. Thus, because future negative cash flows are discounted, for analytical purposes, to net present value and treated as additional investment, the amount of the cash investment associated with different real estate tax shelters or with the one real estate tax shelter analyzed under differing performance assumptions, may vary. As was noted in Part III, above, only adjusted rate of return analysis provides a valid comparison of investments of different amounts.

When analyzing the effect of a premature disposition, the adjusted rate of return must be recomputed and compared with the rate of return available on the portfolio investment and the adjusted rate of return that would be obtained on the real estate investment if it were held for the longer term. For example, if the investor disposed of the hypothetical property at the end of twelve years, the future value of the operating income shown in Table VII, compounded only until the end of Year 12 instead of Year 20, would be $57,390, as shown in Table XVI.

If the property were a commercial building sold for $125,000, the after-tax net cash from the sale would be $9,752. The total future value of the positive cash flows from the investment would then be $67,142, and based on an investment of $25,000, the adjusted rate of return would be 8.58%. From this it can be seen that the investment will be significantly more profitable than a portfolio investment, but it will be only marginally more profitable if the taxpayer disposes of the investment at the end of twelve years than it would have been if the investor had held onto it for twenty years, which would have resulted in an adjusted rate of return of 8.24%, assuming that the building was still worth only $125,000 at the end of twenty years. This conclusion is in contrast to that indicated by comparing net present values. The net present value of the twenty

TABLE XVI

Year	After Tax Cash Flow	Compounding Periods	Future Value (Present Value) (5%)
1	$5,734	11	$9,807
2	5,652	10	9,207
3	4,935	9	7,657
4	4,207	8	6,216
5	4,091	7	5,756
6	3,335	6	4,469
7	2,562	5	3,270
8	2,396	4	2,912
9	2,208	3	2,556
10	1,997	2	2,202
11	1,759	1	1,847
12	1,491	0	1,491

year cash flow (from Table IX) is $25,494, while the net present value of the twelve year cash flow is only $12,387.

Thus, one should not conclude that disposing of the property at the crossover point is always more desirable than holding the property until the mortgage has been paid off. The desirability of a disposition at the crossover point depends on the extent to which the property has held its value and on the prospects for future appreciation. For example, if the property were commercial real estate sold for $67,748 — the amount of the outstanding mortgage — the sale would result in an after-tax negative cash flow of $18,874. Discounted at 5% for twelve years, this would result in an additional deemed investment of $10,510. Thus, this property would be analyzed as an investment of $35,510 that grows to $57,390 at the end of twelve years. Such an investment yields an adjusted rate of return of only 4.08%, which is significantly less than would be available on a portfolio investment. On the other hand, if the property could be sold for $100,000, which results in an after-tax negative cash flow of $2,748 in the year of sale, the adjusted rate of return based on an investment of $62,530 (which includes the present value of the Year 12 negative cash flow) growing to $57,390 at the end of twelve years will be 6.64%, which is moderately more than would be available on a portfolio investment.

It is important to analyze the effect of a sale at the crossover point using any assumptions that have been deemed warranted to compensate for the possibility of overly optimistic before-tax cash flow assumptions. For example, if the hypothetical real estate investment analyzed in this article generated annual rents of $1,500 less than as projected in Table VII, resulting in a break-even before-tax cash flow, and the after-tax cash flow was reduced concomitantly, an investor using a 5% after-tax discount rate would find that the cash flows had a negative net present value unless the property were sold at the end of Year 12 for at least something near $103,000. This is in comparison to the $37,000 sales price at the end of twenty years that was sufficient to justify the real estate investment as better than a portfolio investment using this same reduced cash flow assumption. Retention of residual fair market value becomes more important as operating before-tax cash flow decreases.

If the investor uses a 10% after-tax discount rate, then appreciation becomes important. The net present value of the twelve-year cash flows resulting from a sale for $125,000 — the original purchase price — at the end of twelve years is negative $713. The property must appreciate in value in order for the investment to be preferable to the alternative portfolio investment.

Once again, the adjusted rate of return should be computed using the reduced after-tax cash flows, compounded to twelve years, to determine accurately the return on the investment for purposes of comparison with the baseline portfolio investment. While net present value analysis determines whether a real estate tax shelter is more profitable than the portfolio investment, adjusted rate of return analysis quantifies the differential rate of return to enable the potential investor to make an informed judgment.

D. *Comparative Analysis of Alternative Real Estate Tax Shelter Investments*

Most investors face a number of alternative investment decisions. An analysis of a particular real estate investment based solely on a comparison to the investor's portfolio rate of return does nothing to help the investor choose between alternative real estate investments. To choose between alternative real estate investments, an adjusted rate of return analysis of each investment must be made and the results compared. Between

alternative real estate investments, the one having the highest adjusted rate of return will be the most profitable investment. In determining the adjusted rate of return, the same discount rate should be used to analyze all alternative investments, but the assumptions regarding cash flow and sales price should be made with respect to the actual property being analyzed.

The use of the net present value method to compare alternative real estate investments may produce deceptive results unless the respective amounts to be invested and terms of year of the alternatives are the same.

E. *The Individual Investor's Tax Profile*

All of the analytical models in this article have simply assumed that the investor considering the real estate investment in question was in the 50% marginal tax bracket. While that assumption is sufficient to illustrate the methodology of analyzing after-tax cash flows, it is a deceptive simplification of the procedure that should be used to convert before-tax cash flows into after-tax cash flows.

The use of the investor's actual effective marginal tax rate is important to an accurate analysis. If deductions generated by tax shelter investments are large enough to cause the deductions to be claimed only partially at the marginal rate that the investor would have been in had he or she not invested in the property, and partially at lower marginal rates, the effect of claiming some of the deductions at less than the top rate should be factored into the analysis. Doing this will show that while tax shelter investments are attractive, investing in too many dilutes the benefits of the later investments. An economist would refer to this as diminishing marginal utility of tax shelter investments. Once the taxpayer has reduced his marginal tax rate to any rate below the top rate of 50%, each additional tax shelter investment becomes progressively less profitable as the deductions are claimed at ever lower rates and the concomitant cash flow generated by tax savings decreases.

All of the analysis in this paper assumes that section 1231 gains will ultimately result in capital gains treatment. That is not necessarily so. The taxpayer may have offsetting section 1231 losses, either for the current year or under the carryover recapture provisions of I.R.C. § 1231(c), that dilute the value of section 1231 gains. Alternatively, the taxpayer may have capital losses, either from the current year or carried over from prior years, that reduce the value of the section 1231 gains. These factors should be taken into account in the risk analysis, since it is difficult to project the capital gains and losses that a taxpayer may have many years in the future.

Another important factor to consider is the possible impact of the minimum tax imposed by I.R.C. § 55. Real estate tax shelter investments generate tax preference items. All ACRS deductions in excess of the amount that would have been claimed under a straight line election are tax preference items under I.R.C. § 57(a)(9). While a few real estate investments are unlikely to trigger minimum tax liability, extensive tax shelter investments very possibly will trigger maximum tax liability.

Another provision that must be reckoned with is the investment interest limitation of I.R.C. § 163(d). Whether this provision applies depends on the particular facts of the operation of each real estate property. The projected income and expenses associated with an investment must be analyzed against the standards of § 163(d)(4). If the investment interest limitation applies, the cash flow analysis must be modified to account for this deceleration of tax benefits.

The above provisions are not the only pitfalls, but they are salient. Among other provisions that may warrant consideration in particular cases are the potential effect of net operating losses from another business of the investor. In sum, giving good advice requires a thorough understanding of the client's entire tax profile.

Conclusion

In this article I have tried to explain in simple terms and examples the principles that make real estate shelters in general desirable investments and the most important analytical models for evaluating the desirability of any particular prospective real estate tax shelter. Although this has been described as an article dealing solely with real estate tax shelters, the analytical methods of evaluation are in fact applicable to other types of investments. Real estate, however, stands apart in that the Investment Tax Credit is not generally available for real estate investments and the "At-Risk" rules of section 465 do not apply to it. Otherwise, both the tax provisions and financial analysis theory applicable to real estate generally are equally applicable to other investments in depreciable property.

It is important to remember that application of the analytical methods described in this article are only part of the tax advisor's job. Today's markets abound with tax shelter investments that have no economic substance. The claimed tax benefits, when scrutinized, are not legitimately available. No amount of financial analysis can render an investment in such a tax shelter a desirable investment, no matter what net present value or adjusted rate of return analysis may indicate. The good tax advisor will understand not only how to quantify, using the methods described in this article, the benefits of investing in legitimate tax shelters, but also how to identify those tax shelter investments that offer no prospect of delivering any after-tax economic benefit if subjected to the scrutiny of the Internal Revenue Service.

Epilogue

While this article was at press, Congress enacted the Tax Reform Act of 1986, significantly altering many details of the rules of taxation affecting real estate, as well as other investments. Strong new rules limiting the deductibility of losses from tax shelter investments were introduced, the maximum nominal marginal rate of tax was reduced to 28 percent (subject to a higher transitional rate for 1987), and the preference for capital gains was eliminated. The cost recovery period for depreciable real estate was extended to 27.5 years for most residential rental property and 31.5 years for nonresidential rental property, and the recovery rate limited to straight line. Furthermore, the at-risk rules of I.R.C. § 465 have been extended to real estate in certain circumstances. Cumulatively, these changes should significantly diminish the lure of real estate tax shelter investments, along with all other tax shelters.

Notwithstanding these major changes in the tax law, the financial analysis of prospective real estate investments using the principles explained in this article will remain an important part of the tax advisor's role. None of the recent changes in the tax law affect the validity of any of the methods of analysis used in this article, although all of the examples used to illustrate the application of these principles will be quite unrealistic in the tax world governed by the Internal Revenue Code of 1986. Some of the subsidiary analysis will also be mooted. Conversion will no longer be available (at least until Congress decides that the economy requires stimulation and restores the capital gain preference).

Deferral will be reduced through the combination of longer cost recovery periods and lower marginal rates, which reduce the value of deductions. Finally, the new rules limiting losses from passive activities significantly limit deferral for noncorporate investors for both leveraged and equity investments. At least this is what Congress intends to be the result.

Whether the new limitations on deductions from tax shelter investments in depreciable property really eliminate tax shelters has yet to be seen. It is possible that they will not. The provision limiting deductions for losses from passive investments allows significant netting of passive losses against passive income. Thus, real estate tax shelter losses can be used to offset income from other real estate investments (or other passive investments) but not income from personal services, interest, and dividends. Given the tenacity of tax shelter promoters, real estate tax shelter investments can be expected to survive, even if the benefits to be derived from them are more limited than they have been in recent years. Furthermore, up to $25,000 of losses generated by real estate business in which the taxpayer actively participates may be deducted against income from other sources, subject to limitations based on the taxpayer's adjusted gross income. None of the new rules limit the deduction of losses generated by real estate investments associated with an active business against other income of that business. Thus, for example, tax losses generated by depreciable real estate, such as a hotel, can be used fully to offset profits derived from providing services as part of the hotel business. Finally, most corporations are exempt from the passive loss limitation rules. Even closely held corporations that are subject to the passive loss limitation rule may deduct passive losses against active business income; only investment income cannot be sheltered by passive losses. Thus, aside from taking into account the effect of conversion, the analytical methods described in this article can be applied, without any significant modification, to prospective real estate investments by a corporation or to real estate investments that are an integral part of an unincorporated active business. With some modification the analytical methods may be applied to all other real estate investments.

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