Assisting Clients in College Education Funding Choices: A Framework for Comparing Alternatives

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Abstract: *Recent educational tax provisions may present large potential benefits to many clients. However, determining which method of saving for college is best for a given family has become much more complex. This article provides an overview of the tax provisions and models the after-tax wealth benefits of investments in three types of college savings strategies. The use of such a projection is preferable to a naive rule of thumb applied to all client situations. The better the consultant's knowledge of the client's circumstances and how they affect these trade-offs, the greater the benefit to the client.*

Introduction

Over the last few years, Congress has adopted several provisions in the Internal Revenue Code (IRC) that are designed to provide incentives for saving for college and to reduce the after-tax costs of higher education. In particular, the rules have been liberalized for two tax-favored methods of saving for college: qualified tuition plans (529 plans) and Coverdell education savings accounts (CESAs).[1] Parents of future college students have welcomed this assistance in saving and paying for their children's college educations, but differences in the details of the plans likely leave them unsure about the alternative that is most beneficial for them. For example, the amounts of contributions to a CESA are limited, but those to a 529 plan are not. At the same time, the client is not allowed to direct the investment of funds in a 529 plan, but a CESA allows the client to maintain such control.

Therefore, while these tax law changes have been beneficial, determining which method of saving for college is best for a given family has become much more complex, and deciding which alternative is optimal in a specific case is often unclear. This decision is even more complicated if there exists a possibility that the savings will not ultimately be used for educational purposes, since the tax costs associated with such distributions can be significant. In this case, the client may be well advised to invest outside of a 529 plan or CESA. While this

investment strategy foregoes the tax benefits of these two plans, it may possess other, offsetting advantages. The family's best advice in this area will doubtless come from the financial service professional who regularly performs the retirement, insurance, or tax planning for the client and is already familiar with the overall financial picture of the client. In this article, we provide a framework for analyzing the relative advantages of these various education financing alternatives. This will aid the financial professional in determining which alternative should be recommended to meet a given client's needs.

This article models the after-tax wealth of investments in three types of college savings strategies: a 529 plan, a CESA, and an outside (nontax-favored) investment (e.g., purchase of mutual fund shares). The model takes into account the after-tax growth of the contribution, the tax costs of nonqualifying distributions, and the tax benefits from spending funds for college expenses. While a 529 plan and CESA are tax-favored if spent for educational purposes, other uses may result in both tax and a 10% penalty. This potential tax cost is explicitly built into the model. Numerical examples are provided that demonstrate that the most favorable of the three strategies in a given tax situation will depend on the circumstances, including the growth rates of the various investments, the probabilities of the child receiving a scholarship or choosing not to attend college, tax rates and penalties, and other tax benefits available.

Relevant Tax Law
529 Plans

IRC Section 529 provides details related to qualified tuition programs.[2] These programs may be created by either a state (or agency), or an educational institution (or combination of institutions). These plans take one of two forms: the prepaid tuition type or the savings type. In the prepaid tuition plan, contributions are used to purchase tuition credits to be used in the future. For the account holder, the return on the investment in the plan is the rate at which tuition increases.[3] The savings type of 529 plan places the contribution into a managed fund, which grows

(hopefully) and can later be used to pay for college expenses. It is necessary to examine the plan of an individual state to determine specific details as to guarantees, permissible institutions, residency, and other issues.[4]

A 529 plan can only accept contributions in cash and must provide separate accounting for each beneficiary. A savings-type 529 plan can offer various choices that differ in their broad investment philosophies, but neither the contributor nor the beneficiary may specifically direct the investment of funds contributed.[5] Many clients may find this cession of control to be an important limitation of these plans. Contributions to the plans are treated as completed gifts. Contributions are not deductible for federal income tax purposes, but some states allow deductions for contributions made to their own 529 plans by their own residents. Distributions from the plan are not taxed as long as they are used for qualified expenses, although the same qualified expenses cannot be used to obtain multiple tax benefits.[6] Distributions that are not used for qualified expenses are taxed at ordinary tax rates and are also subject to a 10% penalty, but the penalty is waived if the distribution is due to the beneficiary's death or disability or to the extent the beneficiary has received scholarships.

Tax-free rollovers are allowed to different 529 plans for the same beneficiary. Similarly, it is possible to change the beneficiary of the plan as long as both are members of the same family. The IRS has also issued guidance that the investment choice within the plan can be changed annually or upon a change in beneficiary.[7] The statute's definition of family is broad and includes, in addition to the traditional dependents, the beneficiary's spouse, the spouses of dependents, and first cousins.[8] Qualified expenses include tuition, fees, books, and equipment. In addition, room and board are qualifying as long as the student attends at least one-half time and the costs are reasonable. There is no dollar limitation on the amount of contributions, but 529 plans are required to provide safeguards that limit contributions to those necessary to pay for the beneficiary's qualified expenses. Unlike many other tax benefits, those of a 529 plan are not phased out with respect to adjusted gross income (AGI).

CESAs

IRC Section 530 provides for the establishment of a CESA.[9] The trust (account) must be established to pay qualified education expenses for the beneficiary of the trust. Contributions must be made in cash and made no later than the time the beneficiary is 18 years old. Annual contributions per beneficiary are limited to $2,000 (except in the case of a rollover contribution), but contribution eligibility is phased out based on the contributor's AGI.[10] Currently, this phaseout begins when AGI reaches $95,000 ($190,000 in the case of taxpayers who are filing a joint return). A CESA must distribute all funds by the time the beneficiary reaches the age of 30. The contributions to the plan are not tax deductible, but the funds will be distributed tax free as long as they are used for qualifying expenses. In addition to those expenses that qualify for purposes of 529 plans, CESA qualifying expenses include qualified elementary and secondary education expenses and contributions to 529 plans. As with 529 plans, distributions that are not used for qualifying expenses are taxed as ordinary income plus a 10% penalty, but the penalty is waived if it is due to death, disability, or the receipt of scholarships. The provision is coordinated with the other provisions related to education expenses described and a duplication of benefits is again not allowed. The beneficiary of the account can be changed as long as the new beneficiary is a member of the same family[11] as the old beneficiary and is not yet 30 years of age. Advantages of a CESA relative to a 529 plan include the ability of the contributor to direct the investment of funds. In addition, amounts in a CESA can be rolled into a 529 plan should this be desired later. The reverse, however, is not true; thus, funds in a 529 plan cannot be rolled into a CESA.

Additional Tax Benefits for College Expenses

Following are tax credits and deductions that are allowed for college expenses. These credits and deductions are discussed only in very general terms, but they do provide additional benefits (or reduced costs) if funds other than those from a 529 plan or CESA are used for college expenses.

Education Loan Interest

IRC Section 221 provides for a deduction of interest paid related to qualified education loans.[12] This deduction is taken above the line, so the taxpayer does not need to itemize deductions to receive the benefit of this provision. This is an advantage over other types of interest deductions, such as that for home mortgage interest, which is only beneficial to the extent the taxpayer has enough itemized deductions to exceed the standard deduction. The deduction is limited to $2,500, but it begins to phase out if the taxpayer's AGI exceeds $50,000 ($100,000 if married filing jointly).[13] The $50,000 and $100,000 amounts are indexed for inflation after 2002. This deduction cannot be taken by those who are dependents of other taxpayers during a given tax year. One of the benefits of the new interest deduction is that it is no longer limited to the first 60 months of payments. The definition of a qualified education loan is flexible and allows loans within a reasonable period of time, which are attributable to college expenses, as long as the loans are not made by a related party or through certain specified contracts.[14] The definition of qualified college expenses for this purpose is very similar to that for 529 plan purposes. A deduction is not allowed under this rule if the deduction can be taken under another tax provision. In addition, married individuals desiring to take the deduction must file a joint return.

Tuition Deduction

IRC Section 222 provides a deduction for qualified tuition and related expenses.[15] In 2002 and 2003, the maximum amount allowed as a deduction is $3,000, but no deduction is allowed if AGI exceeds $65,000 ($130,000 in the case of married taxpayers filing jointly).[16] In 2004 and 2005, the maximum amount eligible for the deduction is increased to $4,000 with the same AGI limits. However, for those with AGI above the applicable limit but not above $80,000 ($160,000 if married filing jointly), the deduction is limited to $2,000. The provision currently does not extend beyond 2005, although Congress may choose before that time to extend it. This deduction is coordinated with other education provisions to

deny a duplication of benefits. The expenses eligible for this deduction are the same as those of the Hope and Lifetime Learning credits, which include tuition and fees but not room and board. As with the education interest deduction, this deduction is an above-the-line deduction. The deduction is not allowed if the individual for whom the expenses were incurred is a dependent of another. Similarly, the deduction is not allowed to a married individual who files a separate return.

Hope and Lifetime Learning Credits

IRC Section 25A details the Hope and Lifetime Learning credits.[17] The Hope credit is limited to the student's first two years of college, while the Lifetime Learning credit has no such limitation. The credits are limited to tuition and fees and do not apply to books or room and board. The Hope credit per student is limited to 100% of the first $1,000 of qualified expenses plus 50% of the next $1,000 of expenses, for a maximum credit of $1,500. The Lifetime Learning credit is 20% of qualified expenses up to $10,000 (beginning in 2003), which results in a maximum credit of $2,000 per tax return.[18] Eligibility for these credits starts to phase out when AGI reaches $40,000 ($80,000 in the case of a married taxpayer filing jointly).[19] The credit is not allowed if the expenses relate to the dependent of another taxpayer. As with all the other provisions discussed above, a duplication of tax benefits for the same expenditures is not allowed. Likewise, the credit is denied to married persons who choose to file separate returns. The two $1,000 amounts for the Hope credit and the AGI limits for both credits are indexed for inflation as of 2002. Both credits are nonrefundable.

Table 1 summarizes some primary characteristics of 529 plans, CESAs, and outside investments.

Framework of the Decision Process

This framework presents three different strategies that may be used to provide for college expenses: (1) a 529 plan, (2) a CESA,[22] and (3) an investment outside of these two plans that would be liquidated to pay the child's college expenses.[23] Included in this structure are variables denoting the probability that the funds will be used for education or other purposes. While it may be impossible to determine the exact probability of these occurrences, it is important that these probabilities be esti-

TABLE 1			
	529 Plan	**CESA**	**Outside Investment**
Deduction for contributions?	NO (federal) MAYBE (state)[20]	NO	NO
Annual contribution limit?	NO[21]	Currently $2,000, but subject to phaseout	NO
Tax-free earnings?	YES (if used for qualifying expenses)	YES (if used for qualifying expenses)	NO
10% penalty if not used for qualified expense?	YES (unless due to scholarship, death, or disability)	YES (unless due to scholarship, death, or disability)	NO
Use of other credits or deductions?	Not for the same expenses, must coordinate benefits	Not for the same expenses, must coordinate benefits	YES (unless phased out)
Donor can direct investments?	NO	YES	YES

mated as well; ignoring them assumes that they are zero. The framework examines the growth of a single contribution into the fund, which is sufficient to examine which of the three methods results in the greatest expected after-tax accumulation in a given client's circumstances.[24] The following notation will be used in the analysis:

- C = initial investment.
- n = number of years funds are invested.
- t_s = state income tax savings, as a percentage of C, from contributing to that state's 529 plan.[25]
- t_n = ordinary tax rate (combined federal and state) in year n.
- R_{529} = rate of return on 529 plan. If this is a savings-type 529 plan, this is the return earned on its assets. If this is a prepaid tuition plan, this is the rate of tuition growth.
- R_C = rate of return on CESA assets. R_C could be greater than R_{529} because the client can make better investment choices than the 529 plan administrator or because of fees and expenses associated with 529 plans.
- R_O = annualized *after-tax* rate of return on outside investment.[26]
- P_{QE} = probability that the investment proceeds will be used for qualified college expenses.
- P_S = probability that the investment proceeds will not be used for qualified expenses because the child has a tax-free scholarship, has died, or has become disabled.[27]
- TB_n = tax benefits from expending the outside investment proceeds on qualified expenses (i.e., education tax credits and/or tuition deduction).[28]
- NTB_n = net tax benefits, other than the exclusion from gross income, from expending 529 plan or CESA proceeds on qualified expenses. NTB_n includes any education tax credits and other tax benefits that the client takes, less any ordinary income taxation that results from the proceeds being taken into account for such purposes.[29]

529 Plan

The initial investment in the 529 plan equals $C \div (1 - t_s)$. This assumes that the client contributes an amount such that, after subtracting the state income tax savings

from it, the after-tax contribution is C.[30] The investment in the 529 plan will grow tax free at the plan's rate of return (R_{529}). There is a P_{QE} probability that there will be no tax or penalty because the distributions are used for qualified expenses. There will be tax but no penalty, with a P_S probability, if the funds are not used for qualified expenses due to the beneficiary's receipt of a scholarship, death, or disability. There will be both tax and penalty if the funds are used for other purposes, and there is a $1 - P_{QE} - P_S$ probability that this will occur. The tax and penalty are levied on the investment value in excess of the contribution made into the plan. Mathematically, the expected after-tax accumulation on a given after-tax contribution into a 529 plan can be

$$(1) \quad (P_{QE}) \left\{ \frac{C}{1-t_s} (1 + R_{529})^n + NTB_n \right\}$$

$$+ (P_S) \left\{ \frac{C}{1-t_s}(1 + R_{529})^n - (t_n)[\frac{C}{1-t_s}(1 + R_{529})^n - \frac{C}{1-t_s}] \right\}$$

$$+ (1 - P_{QE} - P_S) \left\{ \frac{C}{1-t_s}(1 + R_{529})^n - (t_n + .10)[\frac{C}{1-t_s}(1 + R_{529})^n - \frac{C}{1-t_s}] \right\}$$

which can be simplified to Equation (2):

$$(2) \quad \frac{C}{1-t_s} \{(1 + R_{529})^n - (t_n)[(1 + R_{529})^n - 1](P_S) - (t_n + .10)^* [(1 + R_{529})^n - 1](1 - P_{QE} - P_S)\} + (P_{QE})^* NTB_n$$

described as in Equation (1):

In other words, the expected after-tax accumulation of a contribution to a 529 plan equals the accumulation on the 529 plan before taxes, minus a tax on the earnings times the probability that just a tax will have to be paid, minus a tax and a 10% penalty on the earnings times the probability that both will have to be paid, and plus the net tax benefit of claiming other tax benefits as opposed to excluding the entire 529 distribution multiplied by the probability that proceeds will be used for qualified expenses.

CESA

Many of the tax characteristics of a CESA are similar to those for 529 plans, with three principal exceptions. First, annual contributions to a beneficiary's CESAs are limited to $2,000. Second, state income tax

deductions are not granted for CESA contributions. Third, a CESA gives the client the ability to make the investment choices for the funds; in conjunction with the fees that 529 plans levy, the return on a CESA is likely to be different than the return on a 529 plan. Similar to the 529 plan, there is a P_{QE} probability that the CESA proceeds will be tax free and penalty free, a P_S probability that a tax but no penalty will be levied, and a $1 - P_{QE} - P_S$ probability that both a tax and a penalty will be incurred. An after-tax contribution of C to a CESA would thus result in the expected after-tax accumulation described in Equation (3):[31]

$$(3) \quad (P_{QE})\{C(1 + R_C)^n + NTB_n\} + (P_S)\{C(1 + R_C)^n - (t_n)[C(1 + R_C)^n - C]\} + (1 - P_{QE} - P_S)\{C(1 + R_C)^n - (t_n + .10)[C(1 + R_C)^n - C]\}$$

which can be simplified to Equation (4):

$$(4) \quad C\{(1 + R_C)^n - (t_n)[(1 + R_C)^n - 1](P_S) - (t_n + .10)[(1 + R_C)^n - 1]^* (1 - P_{QE} - P_S)\} + (P_{QE})^*NTB_n$$

Outside Investment

An outside investment would grow at the annualized after-tax rate of return of the investment selected (R_O). Depending on the type of investment selected, the growth may be taxed annually as earned, or it may be taxed upon liquidation, with possible capital gains treatment. The use of the annualized after-tax rate of return allows for these various possible alternatives. With an outside investment, the taxpayer may well benefit from the tuition deduction and the Hope and Lifetime Learning credits described previously. It should be noted, however, that these provisions may be repealed prior to the use of the funds for education purposes. Likewise, those deductions with a sunset provision may not be reenacted.[32] To the extent that the adviser and client anticipate the possibility of these tax benefits, they should be included in the decision process. The tax on the outside investment's earnings should be taken into account when specifying R_O, so it does not need to be taken into account again when the investment is liquidated. In addition, no 10% penalty will be levied, regardless of the manner in which the investment proceeds are spent.

There is a P_{QE} probability that the proceeds will be used for qualified college expenses, reducing taxes by TB_n. Therefore, the expected after-tax value of a contribution to an outside savings alternative and its possible expenditure on qualified expenses will equal the result of Equation (5):

$$(5) \quad C(1 + R_O)^n + (TB_n)(P_{QE})$$

Numerical Examples

The following numerical examples illustrate the application of the three investment models developed here. The examples show that college funding choice that results in the largest after-tax accumulation is client specific, depending on the particular circumstances.

Example 1

The following parameter values are used for the first example:

- The initial investment (C) is $2,000.
- The investment horizon (n) is 15 years.
- The state income tax savings resulting from a 529 plan contribution (t_s) are 5%.
- The ordinary tax rate at the end of the 15-year investment horizon (t_n) is 30%.
- The rates of return are 9.25% on a 529 plan (R_{529}), 10% on a CESA (R_C), and 8.25% on an outside investment (R_O).
- There is a 45% chance that the investment proceeds will be used for qualified college expenses (P_{QE}), a 35% chance that the proceeds will not be used for qualified expenses because the child has a tax-free scholarship, has died, or has become disabled (P_S), and a 20% chance that the proceeds will not be used for qualified expenses for some other reason.
- The tax benefits from expending the investment proceeds of an outside investment on qualified expenses (TB_n) are 12.5% of such proceeds.[33]
- The net tax benefit from spending 529 plan or CESA distributions on qualified expenses (NTB_n) is zero.[34]

If an investment is made in a 529 plan, the expected after-tax accumulation is $6,858.[35] Given the 5% state

income tax savings that result from a 529 plan contribution, the client can invest $2,105 [$2,000 ÷ (1 − 0.05)] and have the after-tax contribution be only $2,000. This $2,105 will grow to $7,936 ($2,105 x 1.0925[15]) immediately before it is liquidated.[36] There is a 45% chance that no tax or penalty will be paid, a 35% chance that a $1,749 tax [($7,936 − $2,105) x .30] but no penalty will be paid, and a 20% chance that a $1,749 tax and a $583 penalty [($7,936 − $2,105) x .10] will be paid. The expected after-tax accumulation is thus $6,858 {$7,936 − (.45 x $0) − (.35 x $1,749) − [.20 x ($1,749 + $583)]}.[37]

If an investment is made in a CESA, the expected after-tax accumulation is $7,179.[38] No 5% state income tax savings are available for a CESA contribution, so the before-tax and after-tax investments are both $2,000. This will grow to $8,354 ($2,000 x 1.10[15]) over the 15-year investment horizon. Similar to the 529 plan, no tax or penalty will be paid with a probability of 45%, a $1,906 tax [($8,354 − $2,000) x .30] will be paid with a probability of 35%, and a $1,906 tax and $635 penalty [($8,354 − $2,000) x .10] will be paid with a probability of 20%. The expected after-tax accumulation is thus $7,179 {$8,354 − (.45 x $0) − (.35 x $1,906) − [.20 x ($1,906 + $635)]}.

If an investment is made in an outside investment, the expected after-tax accumulation is $6,938.[39] The $2,000 initial investment will grow to $6,568 over the 15-year investment horizon ($2,000 x 1.0825[15]). Regardless of the use of the investment proceeds, no tax or penalty will be paid upon liquidation.[40] There is a 45% chance that the proceeds will be used for qualified college expenses, in which case the tuition deduction and/or education tax credits may be available to the client. Given the assumed TB_n of 12.5% of the outside investment's proceeds, the tax savings from expending the proceeds in this manner are $821 (.125 x $6,568), making the expected after-tax accumulation $6,938 [$6,568 + (.45 x $821)].[41]

Comparing the three expected after-tax accumulations, a CESA is best for a client in these circumstances. Since the CESA annual investment limit is $2,000, if the client wanted to invest more than this amount, the client should invest $2,000 in a CESA and the remainder in an outside investment, which is the second-best alternative.

Example 2

Assume the same facts as in Example 1, except that the tax benefits from expending the investment proceeds of an outside investment on qualified expenses (TB_n) are 25% of such proceeds (rather than 12.5%). The expected after-tax accumulations of an investment in a 529 plan and in a CESA are still $6,858 and $7,179, respectively. However, the expected after-tax accumulation associated with an outside investment increases to $7,307,[42] making it the best alternative of the three. Unsurprisingly, when the tax benefits from expending outside investment proceeds on qualified expenses become larger, the outside investment alternative becomes relatively better.

Example 3

Assume the same facts as in Example 1, except that the rate of return on a 529 plan (R_{529}) is 9.75% (rather than 9.25%). The expected after-tax accumulations associated with the CESA and outside investment alternatives are still $7,179 and $6,938, respectively. However, the 529 plan's expected after-tax accumulation increases to $7,316,[43] making it the best alternative. Unsurprisingly, when the 529 plan's return becomes larger, it performs relatively better. Although it earns a return that is less than that of a CESA, the up-front state income tax savings are large enough to offset the disadvantage of a smaller return.

Break-Even Analysis

Figure 1 depicts a break-even analysis for the parameter values in the numerical examples. The figure shows, for various levels of TB_n, the minimum R_O for which the outside investment provides the largest expected after-tax accumulation. The analysis in Figure 1 is more complicated than is typical for a break-even analysis because there are three decision alternatives rather than only two. Thus, the figure shows the R_O that is needed for an outside investment to outperform the better of the other two alternatives. Given the other parameter values, a 529 plan with a 9.6% return provides the same expected after-tax accumulation as a CESA with a 10% return. Therefore (to the left of the dashed vertical line at 9.6%), an outside investment will outperform both a 529 plan and a CESA if it outperforms

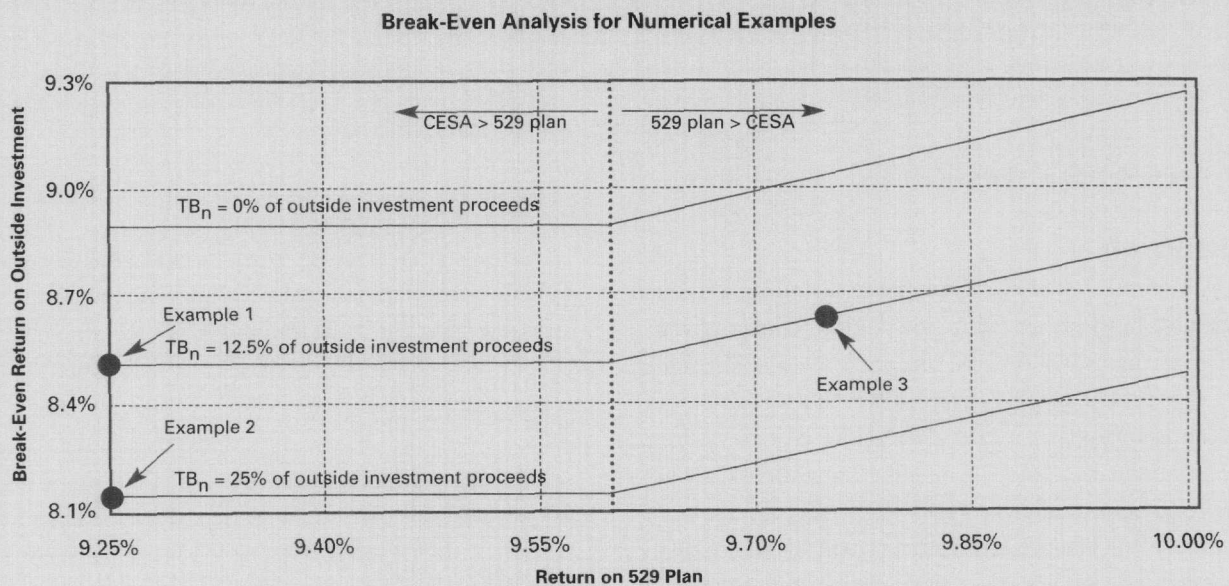a CESA (to the right of the dashed vertical line, if an outside investment outperforms a 529 plan).

In Example 1, where TB_n was 12.5% of the outside investment proceeds, R_{529} was 9.25%, and R_O was 8.25%, a CESA was the best alternative. Figure 1 also indicates this result: when TB_n is 12.5% of outside investment proceeds and R_{529} is 9.25%, an outside investment will be best if R_O exceeds 8.5%. Since R_O is less than 8.5% and R_{529} is less than 9.6%, a CESA is the best alternative. Example 2 differed from Example 1 only in that TB_n was 25% of outside investment proceeds, which lowers the breakeven R_O in Figure 1 to 8.1%. Since this is less than the assumed R_O of 8.25%, an outside investment is best. Finally, Example 3 differed from Example 1 only in that R_{529} was 9.75%. A 529 plan is thus better than a CESA and, since the break-even R_O of 8.6% exceeds the assumed R_O of 8.25%, a 529 plan is also better than an outside investment.

Other Considerations

In addition to 529 plans and CESAs, it is possible to use funds from a qualified retirement plan to pay for college expenses. Such a distribution is not subject to the usual 10% penalty for early withdrawals, and it would not have to be repaid in the future. Such a distribution is, however, subject to tax at the time of distribution at ordinary rates. In addition, there is a loss of retirement fund integrity which, depending on the earnings of the plan, time until retirement, and other factors, may be very damaging to the client's retirement goals. This loss of fund integrity is typically so detrimental that we consider it a last resort to be used when none of the college savings strategies above is feasible and student loans at after-tax rates below the average earnings of the retirement plan are not available. For this reason, it is not included in the framework of determining the best investment strategy.

Another alternative is the use of a home equity loan to

FIGURE 1

Break-Even Analysis for Numerical Examples

(Y-axis: Break-Even Return on Outside Investment, 8.1% to 9.3%; X-axis: Return on 529 Plan, 9.25% to 10.00%)

CESA > 529 plan | 529 plan > CESA

TB_n = 0% of outside investment proceeds

Example 1
TB_n = 12.5% of outside investment proceeds

Example 3

Example 2
TB_n = 25% of outside investment proceeds

This figure depicts the minimum annualized after-tax return on an outside investment (R_O) in order for it to provide a larger expected after-tax accumulation than a 529 plan or CESA. This locus of break-even points is depicted for three values for the tax benefits from expending the outside investment proceeds on qualified college expenses (TB_n). Other model parameter values equal those in the numerical examples. To the left (right) of a 9.6% return on a 529 plan, a CESA provides a larger (smaller) expected after-tax accumulation than a 529 plan.

provide for the education expenses. As long as the loan meets the qualifications, the interest on such a loan would be deductible under the mortgage interest provisions even if the student loan interest provision was repealed.[44] Assuming that both home equity loans and education-specific loans are available, consideration must be given to the relative interest rates on the two types of loans and the deductibility of the interest for a given client situation.

One final area of potential concern is the interaction of the education savings plan and financial aid availability. It is not yet clear how 529 plans and CESAs will be treated for financial aid purposes. Given the relatively low income levels at which subsidized financial aid is eliminated, this may not be an issue for most clients. However, in the interest of full disclosure to clients, this uncertainty should be mentioned. Similarly, it is not yet clear how much protection these plans will provide from the claims of creditors. Therefore, clients who have closely held businesses that allow for the pass-through of liabilities may still wish to use a more established outside investment plan through a legally protected trust instrument until the security of these tax-favored plans from creditors is established. As these uncertainties evolve, the financial consultant may want to investigate these issues for those clients for whom these are important considerations. Regardless, the financial adviser may find it worthwhile to incorporate an appropriate degree of flexibility into the client's strategy.

Conclusion

While the benefits of tax-favored college savings plans have been improved in recent years, the best plan for a given client will depend on the circumstances. This article has provided an overview of the various federal tax provisions related to higher education expenses along with a framework for analyzing which method of savings is likely to be optimal in a given client setting.

Like all such models, it is dependent on the reasonableness of its assumptions and the reliability of the estimates used for its parameters, and it models the current tax system, which is subject to future tax law changes. The use of such a projection is, however, clearly preferable to a naïve rule of thumb applied to all client situations,

which fails to consider the trade-offs that our model captures. The better the consultant's knowledge of the client's circumstances and how they affect these trade-offs, the greater the advantages to the use of such a model. ∎

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(1) IRC §§ 529 and 530, respectively (2002).
(2) IRC § 529 (2002).
(3) If the state guarantees the prepaid tuition plan, the state's investment return must maintain pace with the increasing cost of tuition. The investment risk is thus shifted from the contributor to the state in question. The differences between prepaid tuition plans and savings plans have been described as "roughly parallel to the difference between defined-benefit and defined-contribution retirement plans." Ann Burnstein Cohen, "New Tax Law Provides Challenging Curriculum for College Savings," *Taxes* (September 2001): 17-30.
(4) Two Web sites that provide details on various states' 529 plans and on CESAs are *www.collegesavings.org* and *www.savingforcollege.com.* In addition, a layman's overview of education-related tax benefits is available in IRS Publication 970: "Tax Benefits for Higher Education." This publication can be downloaded without cost from the IRS Web site, *www.irs.gov.*
(5) Specifically, the plan manager(s) may provide alternate investment strategies within the plan from which the contributor may select. The contributor is not, however, able to form an investment strategy not offered by the plan.
(6) Qualifying expenses are first reduced by excluded amounts under IRC § 117 (2002) related to qualified scholarships. Expenses are then further reduced for any amounts used for the Hope or Lifetime Learning credits under IRC § 25A (2002). The remaining expenses are then used in relation to the qualified tuition program or a CESA. If both of these plans are used, the expenses must be allocated between the plans.
(7) Cumulative Bulletin Notice 2001-55, IRB 2001-39, 299 (September 7, 2001).
(8) Formally, these traditional dependents are described in IRC § 152 (a)(1)-(8) (2002), and include parents, children, grandchildren, brothers,

sisters, nieces, nephews, etc. By including first cousins in the definition of family for 529 plan purposes, a grandparent can roll over amounts tax-free from the 529 plan of one grandchild to the plan of another.

(9) IRC § 530 (2002). Prior to the Economic Growth and Tax Relief Reconciliation Act of 2001, CESAs were termed educational IRAs.

(10) More precisely, the phaseout is based on AGI plus the exclusions for foreign earned income and income from certain U.S. possessions.

(11) For purposes of CESAs, the definition of family as provided in IRC § 530(d)(5) (2002) is the same as that used for IRC § 529(e)(2) (2002).

(12) IRC § 221 (2002).

(13) More precisely, the phaseout is based on an AGI that is determined without regard to this deduction, the tuition deduction, the deduction for traditional IRA contributions, and several exclusions.

(14) Specifically, plans defined in IRC § 72(p)(4) and contracts under IRC § 72(p)(5). IRC § 221(d) (2002).

(15) IRC § 222 (2002).

(16) Note that this is a "cliff" and not a gradual phaseout; the first dollar of excess AGI causes the entire deduction to be lost! For this purpose, AGI is determined without regard to this deduction, the tuition deduction, the deduction for traditional IRA contributions, and several exclusions.

(17) IRC § 25A (2002).

(18) For the tax year 2002, this credit is 20% of qualifying expenses up to $5,000, which results in a maximum credit of $1,000.

(19) For this purpose, AGI is determined without regard to the exclusions for foreign earned income and income from certain U.S. possessions.

(20) For a thorough description of state tax deductibility as well as other valuable state-specific information, the authors recommend visiting *www.savingforcollege.com* and *www.collegesavings.org/yourstate.htm*.

(21) Recall that 529 plans are required to provide safeguards that limit contributions to those necessary to pay for the beneficiary's qualified expenses, so the state may choose to impose a contribution limit on its own plan.

(22) As mentioned previously, a CESA can be used to provide funding for elementary and secondary schooling. We do not consider this potential benefit since our focus is college funding.

(23) There are services available to financial service professionals to assist them in planning for the client's needs. Two of the best known are Morningstar (*advisor.morningstar.com*) and Standard and Poors (*fc.standardandpoors.com*). Both of these sites have 529 guide services as well as calculators available for a fee. In addition, most major investment and insurance sites also provide college savings or 529 planning calculators tied in with their funds. Professionals should take note, however, that these calculators do not account for the probabilities discussed in this article, but absolutely assume that all the funds will be used for qualifying purposes. In specific planning situations, however, this may be a very inappropriate assumption. Best use of these services may be for comparison between plans of a given type once the optimal type of plan has been determined using an analysis such as that provided in this article.

(24) In reality, the client will likely be saving for college expenses over several years. However, each year's decision can generally be made independently (e.g., the decision made this year will generally not affect the choices available next year), so our model focuses on only one year's decision. This methodology also assumes a lump-sum withdrawal, which simplifies the calculations and should reasonably approximate the results that would be obtained if a four-year (or longer) payout were modeled as long as the relative rates of return and tax treatment do not substantially change within the four-year period.

(25) For example, if the state allows a deduction for such a contribution and its tax rate is 5%, t_s equals 0.05. If the state provides no deduction or credit for 529 plan contributions, t_s equals 0.

(26) Because of the great diversity of outside investments that are available, we do not attempt to model this annualized after-tax rate of return in more detail. For discussion of the annualized after-tax rate of return, see Thomas R. Pope, Kenneth E. Anderson, and John L. Kramer, *Prentice Hall's Federal Taxation 2003: Individuals* (Upper Saddle River, NJ: Pearson Education, Inc., 2003), chapter 18.

(27) The probability that the investment proceeds will not be used for qualified expenses for other reasons (e.g., the child chooses not to go to college) is thus $1 - P_{QE} - P_S$.

(28) We do not model in more detail these tax benefits for two reasons. First, these tax benefits have changed considerably over the past few years, so we are reluctant to specify more precisely the form that they will take n years into the future. Second, the complexity of these tax provisions and their interaction with other parts of the tax law (e.g., alternative minimum tax) would make a more-detailed modeling complex, possibly obscuring the insights that our more simplified model provide.

(29) The qualified expenses that are taken into account for the Hope and Lifetime Learning credits are not also taken into account for determining the portion of 529 plan and CESA proceeds that are tax free because they are used for qualified expenses. To the extent that qualified expenses are taken into account for education tax credit purposes, 529 plan and/or CESA distributions are subject to ordinary income tax but not any penalty. We are not aware of any authoritative guidance explaining whether qualified expenses *must* first be taken into account for the education tax credits or whether they *may* be so taken into account. Given this uncertainty, as well as the uncertainty that also exists with respect to TB_n, we do not model in more detail NTB_n. The decision of whether to receive tax-free treatment for the entire distribution or to take available credits and pay the tax on the portion of the qualified amounts used to obtain the credits will be a factual determination based on the marginal rate of the client and the rate at which the credit is applied to the expenses. For example, under current tax law, assume a client will have $5,000 of qualifying expenses, is eligible for a Lifetime Learning Credit amount of 20% of qualifying expenses, and faces a marginal tax rate of 27 percent. In such a case, the savings from the credit would be $1,000 ($5,000 x 0.20). The cost of including the amount in income would be additional tax of $1,350 ($5,000 x 0.27). In this case, the use of the credit would not be optimal since it would result in a net increase in taxes of $350, so NTB_n equals 0. Given the likelihood that clients will have income in excess of the allowable limits for the cred-

its and the likelihood that their marginal rates will exceed the rate of the credits (unless current law is substantially changed) it is doubtful that clients will desire to use the credits in this manner.

(30) For example, if C is $2,000 and t_s is 5 percent, the initial investment is assumed to be $2,105 [$2,000 ÷ (1 – 0.05)]. This will produce $105 of state income tax savings ($2,150 x 0.05), making the after-tax contribution $2,000 ($2,105 – $105). In other words, we assume that all state income tax savings will also be invested in the 529 plan. Of course, in reality, this may not be the case and the client may invest the savings in an outside fund or simply consume them. In addition, if the client itemizes deductions for federal purposes, the tax savings at the state level will reduce the deductions at the federal level. We ignore this interaction between state and federal income taxes in our models; doing so avoids unduly complicating them while not significantly changing the results.

(31) This implicitly assumes that the client does not desire to contribute more than $2,000 to a CESA. If the client desires to contribute more than this and the CESA is the best alternative, then the client should put $2,000 into a CESA and put any additional contributions into the second-best alternative. If, on the other hand, one of the other two alternatives is better, the client should not make any contribution to a CESA.

(32) For example, the 2001 tax act is scheduled to sunset at the end of 2010, which has been the focus of much attention. Some of the tax law provisions described previously were part of the 2001 tax act and are thus included in this sunset.

(33) The example assumes a benefit rate below the marginal tax rate affecting the taxpayer due to limits on the deduction allowed. For example, the current deduction for tuition is limited to a maximum of $3,000

to qualifying taxpayers regardless of their marginal tax rate as long as their AGI is below $130,000 (assuming married filing jointly).

(34) A situation where TB_n is positive but NTB_n is zero occurs under current tax law when a married couple's AGI is above $80,000 and below $130,000. Such a situation would result in a tax benefit to the use of the outside investment (i.e., the tuition deduction), but no benefit to the 529 plan or the CESA plan (i.e., education tax credits are phased out and the tuition deduction would exactly offset the gross income from the 529 plan and/or CESA).

(35) See Equation (2): [$2,000 ÷ (1 – 0.05)]{(1 + .0925)^{15} – (.30)[(1 + .0925)^{15} – 1](.35) – (.30 + .10)[(1 + .0925)^{15} – 1](1 – .45 – .35.)} + (.45 x $0).

(36) This calculation differs from $7,936 because of rounding.

(37) This calculation differs from $6,858 because of rounding.

(38) See Equation (4): $2,000{(1 + .10)^{15} – (.30)[(1 + .10)^{15} – 1](.35) – (.30 + .10)[(1 + .10)^{15} – 1](1 – .45 – .35.)} + (.45 x $0).

(39) See Equation (5): $2,000(1 + .0825)^{15} + (.125)[$2,000(1 + .0825)^{15}](.45).

(40) Recall that the 8.25% annualized after-tax rate of return already incorporates any taxes on the outside investment.

(41) This calculation differs from $6,938 because of rounding.

(42) See Equation (5): $2,000(1 + .0825)^{15} + (.25)[$2,000(1 + .0825)^{15}](.45).

(43) See Equation (2): [$2,000 ÷ (1 – 0.05)]{(1 + .0975)^{15} – (.30)[(1 + .0975)^{15} – 1](.35) – (.30 + .10)[(1 + .0975)^{15} – 1](1 – .45 – .35.)} + (.45 x $0).

(44) The amount of home equity loan for which interest is deductible is limited to the lesser of $100,000 or the client's equity in the home before considering the loan.