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Taxes, Estate Planning and Financial Theory: New Insights and Perspectives

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Abstract

We examine how financial theory and economic principles offer guidance and predictions about the organization of investments and asset allocation decisions given the structure of taxes in estate--planning situations. We provide insight about many of the conventional approaches to estate planning and suggest how these strategies can be enhanced. For example, we show that the advantage of the reset provision by which the investor's capital gains tax bases are adjusted to the market value at the time of death is greater in the presence of individual rather than joint ownership of assets, provided that at the first death of one of the joint owners the basis is reset to an average of the date of death value and the survivor's original cost. We analyze asset location and distribution policies in the context of trusts that are outside of the taxable estate of its principal beneficiary as well as direct funds owned by the beneficiary, highlighting the interaction between estate taxation and the reset of the capital gains tax basis at death. We compare the optimal decisions for traditional tax-deferred accounts and after-tax ("Roth") IRAs. Finally, we also examine the value and importance of borrowing in various contexts in estate planning.

Taxes, Estate Planning and Financial Theory: New Insights and Perspectives

1. Introduction

In this paper we examine how financial theory and economic principles offer guidance and predictions about the organization of investments and asset allocation decisions given the structure of taxes in estate--planning situations.[1] We provide insight about many of the conventional approaches to estate planning and suggest how these strategies can be enhanced. The standard approaches to estate planning include the use of (a) a "credit shelter" trust and individual asset ownership titles to allow both spouses to utilize their full lifetime estate and gift tax exemptions, (b) the use of a partnership vehicle in order to obtain a valuation discount, (c) irrevocable life insurance trusts to exclude life insurance policies from the taxable estate, (d) lifetime gifting to reduce the taxable estate and (e) generation—skipping trusts to limit the taxation of estates across generations. These are some of the principal tools recommended by attorneys, as a function of the size of the investor's estate and other family--specific circumstances.

While the institutional arrangements examined are ones widely used in practice, the theoretical lens we use of prescriptive models of diversification and taxes provides novel

[1]The United States estate tax is based upon the individual's taxable estate at the valuation date (e.g., date of death or in some instances an alternative valuation date six months later). The composition of assets does not directly influence estate taxes. Since the estate tax is formulated as if the government owns *x*% of the account at the margin, a tax in this form does not affect marginal portfolio composition. However, the estate tax has been effectively progressive in many cases. For those estates for which the effective marginal tax rate is increasing, the willingness to bear risk may be reduced—especially when mortality risk is relatively high. Capital gains taxes are triggered by asset sales and capital gains tax bases are adjusted to reflect the date of death value. The "reset" of investor tax bases eliminates the capital gains liability on appreciated positions, leading to the incentive to retain relatively large capital gains especially when mortality risk is high (see Dammon, Spatt and Zhang (2001a)). The willingness to bear additional risk caused by the reset of capital gains tax is opposite of the incentive created by the progressivity of the estate tax.

insights for understanding estate--planning problems and issues.[2] For example, we show that the advantage of the reset provision by which the investor's capital gains tax bases are adjusted to the market value at the time of death is greater in the presence of individual rather than joint ownership of assets, provided that at the first death of one of the joint owners the basis is reset to an average of the date of death value and the survivor's original cost.[3] The option value that results is greater in the individual ownership scenario than in the case of joint ownership because of greater flexibility in the diversification opportunities after the reset at death due to greater spreading of the survivor's overall tax bases (which are the exercise prices of the investor's tax-trading options). This exploits within a portfolio—theoretic context the option-theoretic notions that a portfolio of options is more valuable than a single option on the composite portfolio and that option values are convex in the exercise price (see, e.g., Merton [1973]). While the treatment of the basis assumed is appropriate in non-community property states (41 of 50 states within the United States), in the community property states the entire basis of "community property" assets is reset to the market value at the death of either owner as the full position is presumed 100% owned by each of the two marital owners.[4] Consequently, the value of the reset provision and the resulting incentive of the elderly to own equity are particularly large for "community property." However,

[2]We assume throughout our analysis that the investor's marginal beneficiaries are individuals (e.g., family members) rather than charitable organizations as the planning issues and opportunities would be substantially different in the latter context.

[3]The potential value and impact of the reset provision at death was first highlighted in finance by the analysis of Dammon, Spatt and Zhang (2001a) in which the investor's exposure to risky securities increases with age as a consequence of the increasing value of the reset provision and the efficient tradeoff between realizing capital gains and portfolio rebalancing. The basic notion of tax-timing options and their importance to financial asset valuation was developed by Constantinides (1983, 1984) and extended by Dammon and Spatt (1996).

[4]The community property states are Arizona, California, Idaho, Louisiana, Nevada, New Mexico, Texas, Washington, and Wisconsin.

the reset provision does not affect the titling of "community property" because the 100% reset obtains whether the asset was titled to the deceased, the survivor or jointly owned.

We also analyze asset location and distribution/contribution policies in the context of trusts that are outside of the taxable estate of its principal beneficiary as well as direct funds owned by the beneficiary. The importance of optimal asset location when accounts are taxed differently from one another is highlighted by Dammon, Spatt and Zhang (2004) in the context of taxable and tax-deferred investing. Estate planning leads to a variety of tax treatments and scope for asset location. We identify optimal policies for investors with separate funds that are inside and outside the investor's taxable estate (such as the inherited funds in a "credit shelter" trust), where the funds inside the taxable estate allow reset of the tax basis at death (making equity more attractive, especially for the elderly) and the funds outside the taxable estate do not benefit from further capital gains reset. Consequently, for a sufficiently small value of wealth owned by a couple, it would be optimal to not establish a credit shelter trust (even if costless to do so) or alternatively, place only a limited amount of funds within it (because the likelihood of estate taxes at the margin at the second death is sufficiently small) and instead benefit from the reset of the capital gains bases on those assets not in the trust at the second death. For investors with moderate wealth levels the value of the credit shelter trust can be less than the potential value of the reset of the tax bases at death. Our approach suggests that the amount of funding of the credit shelter trust should equate the marginal expected estate tax savings and marginal benefit from the reset provision at the second death under the risk-neutral measure at each point in time that there is a marginal funding

or distribution decision between the accounts (e.g., the optimal funding or distribution choice is not at a corner). In the face of a rising estate tax exemption threshold over time, investors will find it less attractive over time to utilize the credit shelter provision in order to more fully utilize the basis reset at the second death.[5] Our analysis of the initial contribution and periodic distribution decisions is one of several ways in which we examine the tradeoff and interaction between estate and income taxes.

Throughout our analysis we highlight the importance and value of various "options" (and "powers") under the estate and income tax laws. Our analysis addresses the reset provision at death and asset titling such as joint vs. individual ownership (Section 2), "credit shelter" trusts (Section 3), several insights about the value of tax-deferred investing in both traditional tax-deferred programs and Roth IRAs (Section 4), and the value and importance of borrowing in various contexts in estate planning (Section 5). The paper concludes (Section 6) with a brief discussion of the types of numerical solutions that will complement this analysis.

2. The "Reset" Provision and Asset Titling

One of the most important decisions confronting an investor in estate planning is the ownership form and titling of various assets. In this section we examine how the reset provision at death, through which the investor's tax basis is reset to the market value, influences efficient titling of assets by a marital couple. The analysis in the current paper uses option--pricing principles to reach conclusions that go substantially beyond the

[5]However, starting in 2010 the amount of capital gains that can be reset at death will be somewhat limited ($1.3 million to $4.3 million depending upon beneficiary).

conventional advice of attorneys and estate planners concerning asset titling. This points to an important advantage of individual titling in many circumstances that increases with the value of the investor's assets and is robust to situations in which the individuals' estate tax exemptions have been fully exploited.

The traditional advice of attorneys has emphasized the importance of titling of some assets in the names of the individuals in a marital couple (rather than joint titling of those assets) for *estate tax* purposes in order that the assets pass through the owner's WILL to be available to fund a "credit shelter trust" created under that WILL rather than passing directly to the joint owner. This strategy allows a marital couple to utilize the exemption from estate taxes ($2,000,000 per person in the United States starting on January 1, 2006) on each of the partner's deaths rather than just the second death (the initial exemption would be lost if all of a married individual's assets were passed directly to a spouse at death). Individual rather than joint ownership (whereby the assets would be automatically transferred to the survivor after the first death) also allows more flexibility for such "post-death" options as (a) selecting assets for funding the "credit shelter trust" (which is an "asset location" issue looking forward), (b) exercising the potential beneficiary's option to "disclaim" some or all of his inheritance in favor of the next designated beneficiary and (c) funding the trust above the exemption amount by prepaying federal estate taxes. Though these benefits of individual titling beyond the federal estate exemption amount are small in some circumstances and less emphasized by estate planners than the funding of the basic "credit shelter" amount to preserve the estate tax exemption at the first death of a couple, individual titling beyond the federal estate threshold offers a number of

advantages with respect to “post-death” estate planning decisions (options), in addition to the “reset” treatment highlighted in the text.

Our focus in this section is upon the consequences of asset titling for *capital gains* rather than *estate* taxation. First, we observe that joint titling of assets (by which those assets directly pass to the surviving owner in the case of joint ownership with right of survivorship) is dominated from the perspective of the reset provision and the subsequent tax-trading opportunities by splitting the assets between the two individuals (and for example, passing the individual assets at death to the marital partner by either contractual instructions in the asset titling or by the individual’s WILL), provided that in the case of a jointly--titled asset, its basis is adjusted subsequent at the death of the owner dying first to a “blended basis” that reflects the average of the original acquisition cost (the surviving owner’s previous basis) and the date of death value. This blended basis reflects the blended ownership situation corresponding to joint titling that prevailed prior to the death and the lack of reset directly available on the one-half of the position previously owned by the individual who survived. This leads to the same average basis at the death of one of the owners as the situation in which the assets were individually titled and equally owned by one of the two partners, because half of the assets are reset to the current market value due to the death of their current owner. However, the joint ownership/blended basis situation does not provide as much option value to the owner. The surviving owner would be better off retaining a low basis on half of his shares and obtaining the current market value as his basis on the other half of the shares (so there are *distinct* bases for the two groups of shares), because this would facilitate the ability of the

owner to lighten his exposure to the asset and substantially diversify with no (or lower) capital gains tax cost. If the investor sold *Q* shares he could incur lower tax liability in the individual titling case, as long as *Q* was below the full combined position. In fact, if the surviving owner sold no more than half the overall position (those he inherited), he would incur no immediate capital gains taxes in the individual titling case, unlike the joint ownership--blended adjustment case. This is an extension of the idea in option pricing theory (e.g., Merton (1973) in general contexts and Dammon, Spatt and Zhang (2001b) in the context of tax timing) that a portfolio of options with different exercise prices is at least as valuable as an option on the underlying portfolio with the composite exercise price (i.e., convexity of the option value in the exercise price). Of course, in the situation analyzed here the option comparison involves ownership by investors whose interests are assumed aligned (the deceased individual and the survivor) rather than a single owner. An implication of the greater option value to individual ownership is that in the joint ownership scenario relatively less equity would be purchased than with individual ownership.

From an estate--planning perspective the management of the reset provision is very important and has significant revenue consequences. The foregone federal capital gains tax revenue from the reset provision (relative to a system in which capital gains taxes are paid at death on the unrealized appreciation) exceeds the total revenue from federal estate taxes [documented in detail by Poterba and Weisbenner (2001)]. This occurs even though the long-term capital gains tax rate (currently 15% and previously 20% for most taxpayers with investible assets) is substantially below the federal estate tax bracket, due

to the relatively large number of taxpayers whose estates are below the federal exemption amount that benefit substantially from the reset of the capital gains tax basis at death.[6]

Investors desire to minimize their effective overall tax liability (both explicit and implicit taxes), including both estate and capital gains taxes. In some instances these taxes are traded off with respect to investor decisions. For example, the estate of a deceased taxpayer is allowed to use an "alternative valuation date" of six months after the date of death (instead of using date of death valuations) for all the assets. However, if the taxpayer elects the alternative valuation date it must apply to both estate and capital gains taxes. Weinstock (1995) also indicates that it must reduce the estate tax so that the alternative valuation date concept would not apply if there were no estate tax due based upon the date of death valuation. While low valuations are desirable from the perspective of estate taxes, high valuations minimize the potential capital gains tax liability.

While we have demonstrated that individual titling dominates joint ownership in circumstances in which the basis is adjusted to the blended basis, *equal* splitting of the assets will not in general be the efficient way for a couple to optimize the benefits of the reset provision. Of course, one situation in which equal division of each security position would be the efficient manner to optimize the tax-trading options created by the reset provision would be the situation in which the two partners had identical mortality likelihoods. From a risk aversion/portfolio diversification perspective there are diminishing returns to additional sales (or ownership) of the assets, which ensures that equal division of each asset and basis is efficient when the two partners have identical

[6]This is another form of the observation that only a small fraction of estates pay federal estate taxes.

mortality likelihood and the objective function treats the partners symmetrically. Much of the benefit of reducing exposure to an overexposed position can be obtained by scaling back the position by up to 50%, the amount that can be scaled back without any capital gains tax cost at the first death in the equal division case with individual titling.

Of course, in most situations the couple possesses some information about their relative mortality likelihoods as a byproduct of their respective genders and ages, even absent person--specific health concerns that evolve stochastically. The relevance of mortality information can be seen by reference to the analysis in Dammon, Spatt and Zhang (2001a) of the impact upon a *single* investor of the reset provision in a setting with a single risky asset and a risk-free security. In this setting an increase in the investor's mortality risk profile over time or an increase in the investor's mortality risk at a given age will typically lead to greater retention and purchase of the risky security due to the reduced value of immediate diversification and the potential opportunity at death to adjust the tax basis to the market value. Similarly, if the couple has flexibility to reallocate their exposure between the individuals constituting the marital couple, then the high mortality risk investor will tend to hold relatively more of the risky position with relatively larger gains. This is illustrated by the situation in which one of the individuals has a relatively limited life expectancy, so that the couple would be oriented towards allocating exposures with substantial capital gains to the individual in poor health.[7] This discussion suggests the optimality of skewing the assets held by a couple to reflect their

[7]We should note that the Internal Revenue Service (IRS) can adjust the bases of marital transfers within one year of death and can include in the deceased's estate taxable transfers that occur in the three years immediately prior to the individual's death (see Weinstock [1995]). While this influences the specific tradeoffs confronting a couple with respect to the allocation of its assets, the conceptual point being made still remains.

health circumstances and efficiently exploiting the reset provision. Of course, there often is considerable uncertainty about which of the marital partners is likely to die first, which will influence the optimal form of the division of assets, and limit the degree to which positions should be skewed in the optimal solution from a tax planning perspective. As noted previously, with a complete lack of information about relative mortalities (or identical mortality rates) the nature of the diversification benefits implies that equal splitting is optimal.

The analysis in the earlier portion of this section was based upon the assumption that the basis of jointly—titled assets would be reset at the first death of the joint owners to a blended basis equal to the average of the market value at that death and the initial acquisition cost (i.e., the average of the adjusted basis of the deceased owner and the survivor). In fact, when the owners live in a community property state (or the asset was acquired prior to 1977) the basis is fully reset to the current market value at the first death.[8] The full reset occurs whenever the asset is "community property," whether titled to the deceased, the survivor or jointly owned. Consequently, the reset provision at death does not affect optimal titling of community property. All marital property in a "community property" state is treated as "community property," except for "separate property" that has not been commingled.[9] By definition, the probability of reset of the bases would be greater in community property states than for other states because in a community property state the death of either spouse triggers a full reset of the tax bases. Consequently, when the investor owns or retains "community property" his incentive to

[8]We thank Eleanor Blayney and Bart Francis for identifying to us situations in which the basis of jointly--held property is reset to the full market value at the initial death.
[9]"Separate property" can arise due to inheritances or property owned prior to the marriage.

invest in or retain equity is relatively stronger than for individual ownership in non-community property situations, which as discussed earlier is greater than in the blended ownership scenario.[10] If an individual owns both "community" and "separate" property (see footnote 9), then the individual would skew his risky holdings to the "community" property, if it were not costly to do so.

3. The "Credit Shelter" Trust

One of the basic and most widely used estate--planning tools is the "credit shelter" trust in which individuals set aside assets in a trust (that will remain outside their spouse's estate) rather than directly bequeathing them to their spouse (note that there is an unlimited exemption for transfers to a spouse) in order to more fully utilize the combined estate tax exemption for both individuals to transfer assets to subsequent generations (if all of the assets were gifted or bequeathed directly to the spouse, then the estate tax exemption available at the first death would not be utilized to ultimately transfer assets to the next generation). Typically, the surviving spouse becomes the "income beneficiary" of the trust and the children of the couple ultimately receive the "principal." This structure can arise in various ways including through a revocable trust created during the grantor's lifetime or under the terms of the grantor's WILL (and not funded until death). While lawyers often recommend the use of these trusts (it is perhaps the most basic estate--planning tool), financial theory provides considerable (and previously

[10]We can utilize the setting in Dammon, Spatt and Zhang (2001a) to compare the effect of "community property" treatment upon the equity allocation assuming complete reset of the bases of all of a couple's taxable assets when the first spouse dies (compared to the situation with a single life examined in Dammon, Spatt and Zhang (2001a)). Then the relevant mortality curve would be that characterizing the first death in a couple. The resulting increase in the probability of the reset of the tax bases at a point in time implies that the demand for equity would be higher in community property contexts.

unanalyzed) guidance about the optimal investment and distribution policies for these trusts.

Typically, the surviving spouse would own funds directly in addition to being a beneficiary of the credit shelter trust. For simplicity, we will assume that the surviving spouse is making the decisions for the trust.[11] This raises the question of how does the efficient investment policy for the trust and the individual compare. Alternatively, how should exposures be located efficiently between the investor's taxable account and the credit shelter trust? In a somewhat related context, Dammon, Spatt and Zhang (2004), Garlappi and Huang (2006) and Huang (2000) examine the efficient asset location policy for an investor investing taxable and tax-deferred funds. We will abstract from the presence of a tax-deferred account to highlight the portfolio differences between the personal (taxable) account and the credit shelter trust. We also assume throughout our discussion that the investor's beneficiaries and those of the credit shelter trust coincide to avoid differences in preferences distorting the location or distribution decisions and rely upon arbitrage reasoning to reach our conclusions.

To examine the differences in optimal investment (and distribution) policies it is useful to identify the major differences in tax treatment between the taxable personal account and the trust. Three of the main differences are that (a) the assets in the credit shelter trust have already received the benefit of the reset of the bases on the component assets at the

[11]The surviving spouse is often a trustee of the credit shelter trust, though should not be the only trustee so that the assets are considered outside the survivor's "complete control" and taxable estate.

first death and are not eligible for additional reset in the trust form,[12] (b) the credit shelter trust is potentially outside of the taxable estate of the surviving spouse and therefore not subject to estate taxes at the death of the surviving spouse and (c) the marginal income tax rates for investment returns earned by the trust and the personal taxable account can differ (the stated income tax schedule for the trust reaches the maximum tax rate of 35% at an income level of about $10,050). We examine the implications of these differences for the trust's optimal decisions.

The differences in tax environment for the credit shelter trust and the personal taxable account are important for understanding the optimal location of risks between these capacities. Under the assumption that the investor's personal account will ultimately be subject to estate taxes (at the margin), unlike the credit shelter trust, this suggests that the investor regards the government as owning a portion of the personal account to reflect these estate taxes.[13] This suggests a rescaling (re-weighting) of the relative importance of the accounts (from the investor's perspective the credit shelter trust is relatively more important because of the lack of implicit co-ownership by the estate taxing authority).[14] After adjusting the effective exposure for the rescaling, under a constant marginal estate tax the estate tax difference itself does not suggest systematic differences in the asset allocation policy between the personal and credit shelter accounts.[15]

[12]Of course, the reset provision could be utilized again when subsequent principal beneficiaries of the assets die.

[13]For example, the nature of the government's claim can be out-of-the-money options. This would be relevant for situations in which whether the investor will eventually owe estate taxes is stochastic or even endogenous to the allocation decision within the account subject to estate taxes.

[14]An analogous issue about relative scaling of the accounts arises in the treatment of tax-deferred wealth relative to taxable wealth in Dammon, Spatt and Zhang (2004).

[15]In our analysis we assume that the estate (and income tax) rates are constants. However, the progressively of the actual estate tax schedule suggests a potential reason that elderly investors may not find it optimal to

Another important difference is the lack of opportunity for reset of the capital gains basis in the credit shelter account, unlike for the personal account of the surviving spouse. As a result, equity is relatively more attractive to hold in the personal account, especially when the investor's life expectancy is limited and the embedded capital gains are relatively large so that it would be much more valuable for the elderly to defer the realization of gains in their personal account (to benefit from the potential impending reset of the tax basis). To the extent that there are income tax rates differences between the investor's taxable account and the credit shelter trust account, the higher rate account should hold relatively more equity and fewer bonds than the lower rate account. This reflects the potential deferral of capital gains and the preferential tax rate applied to long-term capital gains and dividends. If the credit shelter account has a higher tax rate than the personal account due to the rate schedule facing trusts increasing to the maximum rate at very low income levels, the rate effect works in the opposite direction from the pure reset effect described above. These clientele (arbitrage) arguments are in the spirit of the analysis of the investment holdings in the taxable vs. tax-deferred account in Dammon, Spatt and Zhang (2004) and Huang (2000). Of course, the clientele arguments about asset location in the credit shelter trust and personal account here also can be extended to incorporate tax-deferred investing.

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add equity exposure as they age as additional risk increases the investor's expected estate tax in some circumstances due to progressivity. This observation also arises explicitly under the perspective that the government's claim under the estate tax is out-of-the-money options (see footnote 13). Of course, this argument would not apply if the investor's marginal estate tax rate would be unaltered by the various asset allocations policies being considered, i.e., if the marginal estate tax rate were constant.

The optimal distribution policy by the credit shelter trust also can be addressed. Because the scheduled income tax rates can be higher for the trust than individual investors (as the trust reaches the maximum tax bracket of 35% at an income level of about $10,050), it is sometimes believed that it is optimal to pay the income tax at the individual level if the individual's marginal tax rate is below that of the trust. However, this ignores the requirement that the income be distributed to the beneficiary if the tax is to be paid at the personal level. If the beneficiary faces potential estate taxes at his own death, then an important cost to consider is the increase in estate taxes that results from the distribution of the after-income tax payoff to the beneficiary. Given the high federal estate tax rates, distribution of the trust's income would not be optimal for a beneficiary who would face future estate taxes with sufficiently high likelihood as the combined income tax and estate tax for the beneficiary would far exceed the income tax on trust income. In contrast, if the beneficiary knew that his estate would not be subject to any (e.g., federal or state) estate taxes, then distribution of the trust's income would be valuable in order to own more assets personally in order to benefit from the reset of the tax basis at the beneficiary's own death. Assuming identical ordinary income tax treatments, the investor's optimal distribution (or initial contribution) decision reflects the tradeoff between the anticipated reset benefits vs. the incremental estate taxes at the beneficiary's future death. This tradeoff will be influenced by such variables as the size of the beneficiary's estate and her age. The issue of distributing trust income also illustrates how repeal of the federal estate tax would alter optimal tradeoffs in estate planning. Of course, if the income is not distributed from the trust, there is no corresponding estate tax cost because the trust itself is outside the beneficiary's taxable estate. One important

implication of this analysis for the institutional design of the credit shelter trust is that it is important for the trust document to provide the trustees the option not to distribute income to the surviving spouse (and potentially allow the funds to grow within the trust rather than requiring their distribution). The argument for a flexible distribution policy is not simply the general observation that flexibility (options) is valuable in principle, but more specifically the desire to maximize the funds outside the estate of the surviving spouse if there is a significant likelihood that the surviving spouse will be subject to federal estate taxation at his own death, i.e., the option to retain funds in the trust is often "in-the-money."

A disadvantage of bequeathing assets to a credit shelter trust is that when the income beneficiary (surviving spouse) dies there would not be an additional reset of the tax basis at that juncture. Consequently, the investor's decision about the extent to which he should bequeath assets to the credit shelter trust would be determined by the tradeoff between the anticipated estate and capital gains taxes at the survivor's death.[16] As a result of the progressivity of the estate tax schedule, including the initial estate tax exemption, investors with relatively small estates could elect not to use the credit shelter trust or allocate only a small proportion of their assets to it (this is in addition to the liquidity disadvantage of the credit shelter trust for an investor with moderate net worth). For example, if a couple were sure that its combined estate would be below the estate tax exemption, then a direct spousal bequest would provide a second reset of the tax bases at the survivor's death. A decision to change the titling of individual assets is a low-cost

[16]This is analogous to the tradeoff after the trust is formed between retaining income in the trust or distributing it directly to the beneficiary.

way (e.g., without redrafting the investor's WILL) to alter the usage of the credit shelter trust as a consequence of the tradeoff being made between anticipated capital gains and estate taxes as the investor's net worth changes. By designating the credit shelter trust as a contingent beneficiary to whom the surviving spouse can "disclaim" some of the bequest would be an even more direct way to optimize the tradeoff *after* death.[17] The nature of the aggregate tradeoff between estate taxes and capital gains taxes is illustrated by the earlier observation that the revenue from federal estate taxes is less than the revenue that would be generated by the taxation of capital gains at death.[18]

A standard feature of many credit shelter trusts gives the beneficiary the option to withdraw up to 5% of the principal (or $5,000, if greater) each year (unexercised options do not cumulate) in addition to the right to withdraw the income as well as principal for "health, welfare, maintenance and support." An adverse consequence of the "5% option" is that 5% of the trust is added to the beneficiary's taxable estate when he dies if the option had not been utilized in the final year of the beneficiary's lifetime (as the "option" was available at the time of death!). As a result, this "option," unlike most traditional financial options, is not innocuous as it increases the taxable estate and estates taxes. In light of the potential opportunity to borrow from the trust as well as the right to withdraw the trust's entire income and its principal for restricted purposes, many trusts (or the WILLS that create them) would benefit from dropping the provision! Of course, as previously discussed greater opportunity to distribute assets from the trust could be

[17]In various estate planning contexts a source of value often arises from a design in which the trustee possesses flexibility and can substantially delay decisions, providing for a valuable look-back option.

[18]Interestingly, in Canada there is no estate tax, but capital gains taxes become due at death. This suggests a stronger incentive for those with long remaining life expectancies to hold highly appreciated assets rather than those with modest life expectancies (there is the opposite incentive in the United States).

beneficial in some circumstances. However, greater benefit from the reset of the tax basis at a beneficiary's death could be obtained by the beneficiary's borrowing from the trust without a formal distribution from the trust that would increase the size of the taxable estate. An alternative solution to the estate tax problem created by the "5% option" is to make the option available only on the last day of the year (as suggested by Weinstock (1995)). As long as the individual does not die on that day, there is no estate tax cost under this alternative.

4. Value of Tax-Deferred Investing

Dammon, Spatt and Zhang (2004) present an analysis of the relative value of tax-deferred vs. taxable wealth and the investment allocation within these accounts. They document substantial value to tax-deferred as compared to taxable wealth. These values are functions of the state variables including the split between taxable and tax-deferred wealth and the investor's age and associated mortality risks. They were computed under the assumption that the tax-deferral opportunity terminated at the investor's death. Under current IRS withdrawal regulations, the permitted withdrawals extend significantly beyond the lifetime of the original tax-deferred accountholder for all choices of beneficiary.[19] This substantially raises the relative value of tax-deferred funds and therefore, the incentive to contribute to tax-deferred accounts.

[19]The impact of the choice of beneficiary upon the required withdrawals is less than under the prior IRS rules for distributions from tax-deferred accounts, but still can be substantial. For example, by bequesting retirement funds to children can result in lower required distributions than if an elderly spouse is the beneficiary. If the elderly spouse has adequate financial resources, it may be advantageous to bequest directly to the children.

Recently, there also has been considerable attention to "Roth" IRAs in which the income tax obligation is prepaid. Under the assumption of constant tax rates and the ability to pay the tax obligation with personal (taxable) funds, the prepayment of the income tax with personal funds for the "Roth" IRA scales up the effective tax-deferred investment. Among additional advantages of the "Roth" IRA are that withdrawals are not required during the investor's lifetime (in contrast, required withdrawals start at age 70.5 for the traditional tax-deferred accounts), and the 10% penalty on premature withdrawals only applies to the after-tax value. The absence of required withdrawals during the owner's lifetime would further enhance the shadow value of such tax-deferred funds.[20] A parallel concept to the "Roth" has been available for Section 401k and 403b programs, starting in 2006.

There also is an interesting option for investors who convert a traditional IRA into a Roth IRA, i.e., the investor can re-characterize or reverse the conversion. In particular, since the tax liability is computed based upon the conversion value, it can be optimal to reverse the conversion if the account value has declined substantially prior to October 15th in the next year. This also suggests that until the re-characterization option expires (or otherwise has little value) it can be valuable to locate volatile assets (and especially a highly concentrated portfolio) in a tax-deferred account, unlike the focus of the location analysis in Dammon, Spatt and Zhang (2004) and Huang (2000) in generic tax-deferred settings.[21] The conversion and recharacterizations will become especially important

[20]Consequently, it is optimal for the investor to retain Roth funds and first withdraw traditional tax-deferred funds if the investor faces constant tax rates over time.
[21]The special tax treatment for employer stock held in 401k plans also alters the conventional asset location advice.

starting in 2010 as 2006 tax legislation repealed the current $100,000 income restriction for individuals and couples to be eligible to convert.[22] This will facilitate conversion by those with especially large tax-deferred accounts.[23]

Similarly, eligible participants can recharacterize a newly funded traditional IRA as a Roth IRA and a Roth IRA as a traditional IRA until October 15th of the year after the contribution. To maximize the option value it is advantageous to separate these accounts by their respective expiration dates (for example, managing separate accounts in which the option to recharacterize expires on October 15th of the current year, October 15th of the following year, and the option is no longer available).

5. The Role of Borrowing in Estate Planning

Of course, the optimal policy for distributing trust income can depend upon the beneficiary's intertemporal consumption preferences. For example, the beneficiary may desire the funding to support his optimal intertemporal consumption policy when he faces liquidity constraints. However, to the extent that the beneficiary can borrow from the credit shelter trust his optimal consumption profile can be achieved without distribution of trust income because the borrowing would not result in any tax liability and could (eventually) be repaid (e.g., even if by the beneficiary's estate). Borrowing allows the

[22]The ability to convert to a Roth can lead to the optimality of after-tax annual IRA contributions by those not satisfying the income test for annual traditional or Roth contributions. However, the attractiveness of after-tax contributions in this scenario can be limited due to blending rules on withdrawals if the individual already has a substantial traditional IRA accumulation.

[23]Because of progressivity of the income tax schedule full conversion may not be optimal in a single year. For example, for taxpayers subject to the Alternative Minimum Tax (AMT) conversion of an amount consistent with eliminating the AMT liability (and therefore, an effective tax rate of 28% in many situations) would be advantageous in some circumstances.

beneficiary to utilize the resources of the trust (if needed) without distributing the funds to his own taxable estate.[24]

This discussion of the income distribution policy of the credit shelter trust points to the broader potential significance of borrowing in estate planning. Borrowing can help economic agents achieve their optimal consumption and risk-sharing strategy, while minimizing the tax liabilities that they face. In the "credit shelter" situation borrowing allows the beneficiary to minimize the estate taxes that his own heirs incur by minimizing the need to distribute funds from the trust for which he is the beneficiary to his own taxable estate. Another commonly--used device in estate planning is a limited partnership to create minority interests and associated valuation discounts, which have the effect of decreasing the effective estate tax rate and increasing the effective estate tax exemption on the relevant assets.[25] The investor using this device typically becomes the general partner, retaining control of the assets. The ability of the general partner to borrow for his personal account against these assets enhances the value of this traditional estate-planning tool.[26] It avoids potential liquidity costs to the investor/general partner associated with the partnership form, even on lifetime gifts to others by the investor.[27]

[24]Notice that the optimal borrowing from the trust typically would not correspond to the amount of the undistributed after-tax income earned by the trust. Also note that the ability of the trust to borrow would reflect the collateralized value of its financial assets.

[25]The limited partnership approach is sometimes recommended, as the "next step" in planning for an estate that would face estate tax liability despite using a credit shelter trust structure. Poterba and Weisbenner (2003) discuss differences in effective taxation rates across asset categories.

[26]The ability to borrow allows the general partner access to the partnership funds for his consumption needs despite obtaining the benefit of the valuation discount on both shares that he will bequest at his death as well as assets that he had *previously* gifted as partnership shares in his lifetime. However, borrowing by the partnership for personal use may spur challenge to the partnership form.

[27]The liquidity costs to the limited partners (as well as the general partner) can be mitigated if the partnership provides them loans as needed (e.g., in the case of the limited partners up to the amount that would have otherwise been gifted to them outright).

These arguments highlight the advantages of making sure that partnership and credit shelter documents allow the option of borrowing.

Dammon, Spatt and Zhang (2001a) point out that borrowing by an elderly investor with substantial holdings of appreciated stock would allow the investor to avoid realizing gains in order to consume, as the investor's tax basis would be "stepped up" to the current market value at death. In that situation the investor would borrow to consume after selling his entire risk-free bond position and any risky assets with losses, thereby avoiding the need to sell highly appreciated securities to consume. Therefore, the ability to borrow facilitates the investor's ability to avoid capital gains taxes efficiently. Similarly, the ability to borrow may allow the investor the opportunity to become better diversified in his portfolio structure despite the presence of substantial appreciated positions, while limiting the sale of the appreciated securities and the associated payment of capital gains taxes.[28]

Dammon, Spatt and Zhang (2004) observe that borrowing by an investor with a substantial tax-deferred retirement account can allow the investor to maximize the "tax-arbitrage" profits available from purchasing bonds in the tax-deferred account. In fact, if the investor can borrow without frictions then the optimal portfolio composition is for the investor to own all of his desired equity in the taxable account, leveraging if necessary, and neutralizing the leverage through bond holdings in the tax-deferred account (see

[28]Since the benefit of the "step up" in basis arises only for assets titled to individuals (but not trusts), it also can be beneficial to borrow from a related credit shelter trust to enhance this benefit.

Dammon, Spatt and Zhang (2004) and Huang (2000)).[29] The ability to borrow (without substantial frictions) in the taxable account eliminates the role of equity in the tax-deferred account as well as the liquidity problems created when a substantial portion of the investor's wealth is tax deferred. In contrast, when the investor is unable to borrow in his taxable account, the investor may purchase equity in his tax-deferred account due to the constraint limiting his ownership of equity in the taxable account (see Figures 1 and 2 in Dammon, Spatt and Zhang ((2004)).

6. Concluding Comments

In revising the paper we plan to use numerical solutions (extending the approach in Dammon, Spatt and Zhang (2001a)) to examine the relative values of the reset option in situations in which there is a single investor vs. a married couple using joint ownership, assuming either 100% reset of the basis at the first death or reset to the blended basis, averaging the surviving spouse's cost and the market value at death. These solutions will allow us to further examine how individual ownership influences the pattern of holdings and investor welfare relative to joint ownership and how substantial skewness in mortality risks between the couple influences the location of risk exposures. In the analysis of the "credit shelter trust" we plan to quantify (as a function of the investor's age and other state variables) how the absence of the reset option influences the relative investment decisions in the credit shelter trust account vs. the individual's own taxable account (which includes the reset option) and the welfare benefit associated with the reset option over the state space. These comparisons require explicit numerical solution over

[29]Notice that the borrowing occurs in the investor's taxable account. The analysis is not sensitive to the statutory restriction that bars or greatly restricts borrowing in tax-deferred retirement accounts.

the entire state space. Because estate planning issues are much more important for elderly (as compared to younger) investors, it will be natural to focus these solutions upon the retirement years, avoiding the need for explicit specification of the labor income generating process. In addition, we plan to quantify how the recent changes in IRS distribution rules for tax-deferred accounts enhance the value of tax-deferred wealth and how the value of Roth vs. traditional tax-deferred funds differ due to the lower effective penalty on withdrawals and lower required withdrawals. It also would be interesting to compare the predictions of this analysis with respect to asset titling and asset location to observed investor behavior.

This paper addresses an important step in developing prescriptive models of how investor should structure their holdings in realistic settings, i.e., examining both traditional and novel estate planning approaches through the theoretical lens of analyses of diversification and taxes. Our analysis highlights the tradeoffs between estate and capital gains and other income taxes and the implicit tax options available under the estate tax law. While we focus upon the tax framework, this facilitates consideration of preference and contracting (non-tax) factors that also play an important role for estate planning decisions.

Relative to the traditional advice from estate attorneys, our analysis offers a number of surprising insights including (a) highlighting the benefits of individual rather than joint titling even for couples who have fully funded their estate tax exemptions, (b) showing that whether the use of credit shelter trusts is optimal depends upon the size of the estate

because of the tradeoff between minimizing estate vs. capital gains taxes given the reset of the capital gains bases at death and the size of the estate exemption, (c) establishing that it need not be optimal for the credit shelter trust to be designed to allow discretionary principal distributions and that it is optimal to allow discretion for the trust to retain income, (d) highlighting the value of the recharacterization option on IRAs and how it changes the nature of tax-deferred investing and (e) illustrating the value of borrowing in effective estate planning.

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