



## Comment on ‘Household Portfolio Choices in Taxable and Tax-Deferred Accounts: Another Puzzle?’

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Using an arbitrage approach, Black (1980) and Tepper (1981) conclude that the optimal corporate pension policy is for companies to fully fund their pension plans, borrowing on corporate account if necessary, and investing the pension fund entirely in taxable bonds.

The implications of the Black-Tepper arbitrage results for optimal asset location for individual investors were first discussed in Dammon et al. (1999). They demonstrate in their numerical analysis that the investor should optimally hold taxable bonds in his tax-deferred account and stocks in his taxable account, borrowing if necessary to achieve the optimal overall risk exposure. When the investor faces a binding borrowing constraint, he may hold some stock in his tax-deferred account, but only if his taxable account is entirely invested in equity. This optimal asset location policy was later formally derived by both Huang (2000) and Dammon et al. (2004) using the Black-Tepper arbitrage approach.

Studies by Shoven (1999), Shoven and Sialm (2002), and Poterba et al. (2000) provide an alternative view. They argue that because many actively managed mutual funds distribute a large fraction of capital gains each year it can be optimal to hold equity in the tax-deferred account and tax-exempt bonds in the taxable account.

However, Dammon et al. (2004) demonstrate that holding equity in the tax-deferred account, and tax-exempt bonds in the taxable account, is optimal only if the form of equity holding is highly tax-inefficient and significantly outperforms a tax-efficient index fund. Given the well-documented evidence on the underperformance of actively managed mutual funds, Dammon et al. (2004) conclude that investors would be better off holding index funds (or individual stocks) in the taxable account and taxable bonds in the tax-deferred account.

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The results on the optimal location of asset holdings are in sharp contrast to the financial advice that investors receive in practice, which often recommends that investors hold a mix of stocks and bonds in both their taxable and tax-deferred accounts. This is reflected in Poterba and Samwick (2002), who report that more than 48 percent of investors owning taxable bonds also own equity in tax-deferred accounts and that more than 41 percent of investors owning equity in tax-deferred accounts also own taxable bonds in taxable accounts using data from the Survey of Consumer Finances. Similar results are also reported in Bergstresser and Poterba (2002).

The most common reaction to this dissonance between the theoretical prediction of tax-efficient portfolio policy and observed portfolio choices is that investors have liquidity needs or a precautionary savings motive. When facing borrowing constraints, the investor who holds bonds in his taxable account can better meet his liquidity needs; thus deviations from the tax-efficient portfolio policy are the result of a precautionary savings motive.

In his study, Amromin (2003) models the liquidity needs as coming from a catastrophic labor income shock coupled with restricted accessibility to the tax-deferred account. This formulation can potentially be better aligned with the existing institutional rules on early asset withdrawal from a tax-deferred account because certain large consumption expenditures such as house purchases or college education may be exempt from the early withdrawal penalty. The exemption of early withdrawal penalty may alleviate the liquidity needs associated with certain large consumption shocks and fail to produce enough precautionary savings incentive to deviate from the tax-efficient asset location policy. Specifically, Amromin (2003) assumes that in the working period the household faces a 0.5 percent probability of losing 99 percent of its labor income in the baseline parameterization.

The numerical analysis is conducted using a three-period model calibrated to annual parameter values. The numerical results show that the catastrophic labor income shock combined with accessibility restrictions similar to the ones used in Dammon et al. (2004) can provide a sufficient precautionary motive to induce the investor to deviate from the tax-efficient portfolio policy. A robustness check in Amromin (2003) indicates that even in the case of complete inaccessibility of retirement wealth prior to retirement, one needs to rely on extreme combinations of shock levels and probabilities to induce deviation from tax-efficient portfolio choices.

Prior to Amromin (2003), liquidity needs or precautionary savings motives are examined in both Dammon et al. (2004) and Huang (2000). In Huang (2000), liquidity needs are modeled as a one-time tax on the investor's total wealth at a known future date. Dammon et al. (2004) investigate how liquidity needs may affect the investor's optimal asset location policy when the investor faces borrowing constraints and short-sale restrictions in a very general setting in the analytical section of their paper. They consider an investor who currently has all equity in

the taxable account and a mix of taxable bonds and equity in the tax-deferred account. This is the optimal asset location in the absence of liquidity needs. Using an arbitrage argument, Dammon et al. (2004) find that for liquidity considerations to influence the asset location decision there must be a positive probability of a random shock to consumption that exceeds the investor's resources in his taxable account combined with a sufficiently negative correlation between these shocks and equity returns.

In the numerical analysis section of Dammon et al. (2004), liquidity needs are modeled as a "consumption gulp" equal to a fixed percentage of total wealth. The "consumption gulp" is modeled two different ways: (1) as a known shock that occurs at a known future date and (2) as a stochastic shock that is negatively correlated with equity returns but independent over time. Dammon et al. (2004) demonstrate that deviations from the tax-efficient asset location policy can occur, but are limited both in their magnitude and timing.

The result reported in Amromin (2003) is consistent with the finding of Dammon et al. (2004) for a stochastic consumption shock. In Dammon et al. (2004), the investor deviates from the tax-efficient allocation for several periods immediately before retirement when he faces a random consumption shock equal to 50 percent of total wealth that is negatively correlated with equity returns. The investor in Dammon et al. (2004) also reduces his contribution to the tax-deferred account long before he deviates from the tax-efficient allocation. This is due to the fact that it is much more effective to alleviate the investor's liquidity needs by holding more wealth outside the tax-deferred account than to deviate from the tax-efficient portfolio location in the presence of restricted access to the tax-deferred account.

Because of the limited number of periods considered in Amromin (2003), he cannot investigate whether the household would hold the tax-efficient portfolio several periods prior to retirement. Given the finding in Dammon et al. (2004), it seems that the challenge is not only to produce deviations from tax-efficient asset location, but also produce deviations from tax-efficient asset location policy over a long time period that includes younger ages. Since existing empirical results show that households in all age groups hold interior mixes of bonds and stocks in both their taxable and tax-deferred accounts, the results in Amromin's (2003) three-period model do not extend our understanding beyond Dammon et al. (2004).

A related issue on the limited number of periods considered in the model is the magnitude of the deviation from the tax-efficient asset location. In a more realistic life-cycle model with many time periods, the cost of deviating from the tax-efficient asset location is also higher as demonstrated in Dammon et al. (2004). Consequently, the combinations of state variables for which mixed portfolios occur (Segment A in Figure 2) are much smaller and the deviation of asset allocation from the tax-efficient asset allocation is also much more attenuated.

The magnitude of the labor income loss in Amromin (2003) is extreme in comparison to the labor income shocks commonly documented using the Panel Study of Income Dynamics data (Gakidis, 1998). Given the considerable benefits of the

tax-efficient portfolio, it is questionable whether plausible labor income shocks, coupled with realistic restrictions on the accessibility to the tax-deferred account, will provide a sufficient precautionary motive to induce investors to deviate from the tax-efficient portfolio with the same magnitude observed in the data.

In reality many investors receive nonfinancial income from various sources and have some ability to borrow to smooth consumption. Liquidity shocks alone may not generate significant precautionary demand for bonds in the taxable account. The “asset location puzzle” observed in practice is likely to attract more research in the future. One possible direction is to introduce persistence in either the stochastic income process or consumption shocks.

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