

The Economic Effects of Special Purpose Entities on Corporate Tax Avoidance

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Both academic research and government reports study the tax effects of many different tax-advantaged transactions.² However, few studies evaluate the *organizational structures* facilitating such transactions, while those that do examine tax incentives and general determinants rather than the tax effects (Shevlin (1987); Beatty, *et al.* (1995); Feng, *et al.* (2009); Donohoe, *et al.* (2013)). Empirical evidence on the tax effects of organizational structures is important because, while lawmakers and regulators call for changes in the tax and financial reporting policies for organizational structures (JCT (2003); Basel Committee on Banking Supervision (2009); OECD (2013, 2015a, 2015b)), existing knowledge about the tax revenue losses attributable to such structures is largely anecdotal. We fill this void by examining whether, how, and the extent to which increasingly common components of organizational structures—special purpose entities (SPEs)—facilitate corporate tax avoidance.³

SPEs are separate legal entities created by a sponsor-firm to perform narrow, predefined business activities or series of transactions (Feng, *et al.* (2009)).⁴ Corporate use of SPEs is large and growing, with nearly a quarter of all Compustat firms and one-half of S&P 500 firms using at least one SPE (Zion and Carcache (2003)). The number of SPE users in our sample has also increased by more than 600 percent from 1997 to 2011. While SPEs are used in common financial arrangements, such as leases and securitizations, anecdotes suggest companies use them to facilitate corporate tax avoidance; that is, reduce explicit taxes (JCT (2003)). To this end, critics consider special purpose entities a “series of dirty words” in taxation (Forbes and Sharma (2008)), while many other groups, including researchers (Mills, *et al.* (2012); Zion and Carcache (2003)), global tax authorities (Internal Revenue Bulletin 2011-39; Inland Revenue (2013)), and regulators (FASB (2003); JCT (2003, 2011); OECD (2013, 2015a, 2015b); United Nations (2013)) suspect that SPEs contribute to the continuing decline in corporate tax revenues.

Unlike tax-advantaged transactions, SPEs are organizational structures that do not directly generate tax savings, but instead facilitate tax savings in two ways.⁵ The first way is by allowing sponsors to conduct a greater *level* of tax-advantaged transactions. By separating high-risk assets from the sponsor, SPEs can enable greater

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² See U.S. Treasury (1999); Graham (2000); Hanlon and Heitzman (2010); Government Accountability Office [GAO] (2011); Organisation for Economic Co-Operation and Development [OECD] (2011); and U.S. Congress Joint Committee on Taxation [JCT] (2011).

³ Tax avoidance does not necessarily imply improper behavior, as managing tax costs is an appropriate component of a firm’s long-term strategy (Atwood, *et al.* (2012)). Our full working paper (available upon request) describes how SPEs facilitate tax avoidance.

⁴ SPEs are also known as variable interest entities (VIEs) or special purpose vehicles (SPVs). VIEs are a subset of SPEs subject to consolidation under Financial Interpretation No. 46 (Financial Accounting Standards Board [FASB] (2006)) and subsequent pronouncements (Chasteen (2005)). We use the term “SPE” to refer to all such entities.

⁵ A tax-advantaged transaction reduces tax costs independent of taxpayer motives. For example, the debt-tax shield of leverage and tax credits from R&D expense reduce taxes, but do not necessarily result from intentional tax planning. We discuss this concept further and map empirical proxies to such transactions in our full working paper available online at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2557752.

(1) debt capacity, resulting in more tax-deductible interest expense (Mills and Newberry (2005)); (2) external financing, leading to more research and development (R&D) deductions and tax credits (Shevlin (1987)); and (3) synthetic leases, increasing depreciation deductions (Zechman (2010)). The second way that SPEs facilitate tax savings is by enhancing tax *efficiency*, or the relative tax savings from existing tax-advantaged transactions (i.e., holding *level* constant). For example, SPEs allow firms to: (1) shift profits to jurisdictions with low tax rates (Drucker (2007); Forbes and Sharma (2008); Dyreng, *et al.* (2013)); (2) design and operate tax shelters (Graham and Tucker (2006); Wilson (2009); Lisowsky (2010)); and (3) structure intercompany transactions that result in tax credit and loss duplication (JCT (2003); Sheppard (2017)).

It is important to understand the ways in which SPEs facilitate tax-advantaged transactions (i.e., by changing their level or efficiency) because they shed light on the tax-motivated business strategies to achieve tax savings (Scholes, *et al.* (2014)). For example, if SPEs enable a firm to engage in a greater level of tax-advantaged transactions, such as R&D, then this tax avoidance may be within the bounds of tax law and beneficial to corporate stakeholders. However, if SPEs enable a firm to enhance the tax efficiency of a transaction, such as shifting R&D-related profits to tax havens or implementing a tax shelter that results in R&D credit duplication, then this tax avoidance may be pushing the bounds of tax law and exposing corporate stakeholders to additional costs (e.g., tax audits and penalties).

Despite our focus on taxes, some experts argue that obtaining tax savings is *not* the main objective of common SPEs (e.g., for asset financing), suggesting these organizational structures play a minor role in corporate tax avoidance (Soroosh and Ciesielski (2004)). Even when tax savings are a primary objective, SPEs are not necessarily optimal once all costs are considered (Scholes, *et al.* (2014)). For example, in addition to legal setup costs, SPEs can reduce information quality (Feng, *et al.* (2009)), increase regulatory scrutiny (Internal Revenue Bulletin 2011–39; Inland Revenue (2013)), enhance public pressure (Dyreng, *et al.* (2016)), and result in large tax penalties (Wilson (2009)).

Accordingly, we investigate whether and under what circumstances the tax effects of SPEs are economically significant by answering three open empirical questions. First, to what extent do SPEs enable sponsor-firms to conduct a greater *level* of tax-advantaged transactions? That is, we examine which specific transactions are commonly used within SPE-structures for tax avoidance. Second, how large are the tax savings facilitated by SPEs? Third, for which specific transactions do SPEs enhance tax *efficiency*, or relative tax savings? Directly measuring the level and efficiency of tax savings facilitated by SPEs will empirically answer important tax policy questions; namely, whether, how, and the extent to which organizational structures enable corporate tax avoidance.

We begin our analyses by providing the first large-sample empirical evidence on the overall relation between SPEs and corporate tax avoidance. Specifically, we regress two different forward-looking effective tax rates (ETRs) estimated over a three-year horizon (t to $t+2$) on both a binary and continuous measure of SPEs derived from Exhibit 21 of Form 10-K during 1997–2011. We use fixed-effects estimation (a generalized difference-in-differences framework), which measures the effect of changes in SPE use on ETRs; that is, the *incremental* tax savings attributable to SPEs (Wooldridge (2010); Roberts and Whited (2013)). We find that both the number of SPEs and the use of SPEs are negatively and significantly associated with future GAAP ETRs (i.e., total tax expense scaled by pretax income) and cash ETRs (i.e., cash taxes paid scaled by pretax income), suggesting that SPEs facilitate tax avoidance incremental to common tax-advantaged transactions and other controls.

Next, we use path analysis to decompose the overall relation between SPEs and ETRs into direct and indirect paths. While regression analysis gauges overall effects, path analysis considers the existence and relative importance of alternative (indirect) paths of influence that jointly create overall effects (Bhattacharya, *et al.* (2012)). As a class of structural equation models, path analysis allows us to investigate the extent to which tax-advantaged transactions captured in our model are used *within* SPEs to avoid taxes. In other words, path analysis estimates the extent to which SPEs incrementally increase the *level* of tax-advantaged transactions, and provides a focused setting in which to estimate the total tax savings facilitated by SPEs.

We find that several tax-advantaged transactions are used within SPEs to avoid corporate taxes. Specifically, we estimate that SPEs facilitate 1.8 percent of the cash tax savings from leverage, 3.3 percent from net

operating loss (NOL) carryforwards, 8.7 percent from R&D, 6.1 percent from intangibles, and all of the cash tax savings from tax havens. Thus, the path analysis indicates that SPEs increase the *level* of several specific tax-advantaged transactions in an economically meaningful way.

The path analysis also reveals that SPEs facilitate an economically significant amount of total tax savings. Among our principal results, we find that firms using the mean number of SPEs (5.48) have cash ETRs that are 4.4 percent lower than nonusers. At the firm level, these effects indicate that SPE users realize \$7.8 million more in cash tax savings per year than firms not using SPEs. In aggregate, we estimate total cash tax savings of \$82.4 billion for our sample of 10,284 SPE users, or approximately 2 percent of total U.S. federal corporate income tax collections during the sample period.⁶ These estimates are considerably larger than those for other complex planning strategies, including tax shelters (Wilson (2009)), tax havens (Dyrenge and Lindsey (2009)), round-tripping (Hanlon, *et al.* (2015)), and financial derivatives (Donohoe (2015)).

We next use moderation analysis to estimate the extent to which SPEs enhance the relative tax savings (i.e., tax *efficiency*) of tax-advantaged transactions. Moderation analysis considers if the relation between two variables depends on a third variable, allowing us to examine if specific transactions (as captured by model covariates) generate more or less tax savings when performed within versus outside SPEs. While the *path* analysis reveals that an economically large portion of the tax savings from leverage, NOLs carryforwards, and tax havens occur within SPEs by contributing to increased debt capacity, loss deductibility, and income shifting opportunities, respectively, the *moderation* analysis shows that SPEs do not enhance the tax efficiency of these transactions. However, SPEs enable a greater level *and* efficiency of total tax savings for R&D and intangibles-based transactions by 92.6 percent and 72.5 percent, respectively.

Finally, we perform several other tests to provide further insight on the tax effects of SPEs. First, we consider the link between SPEs and tax aggressiveness. We find that SPE use has a positive relation with unrecognized tax benefits (Lisowsky, *et al.* (2013)), but not the likelihood of tax shelter participation (Lisowsky (2010)), suggesting that, on average, SPEs facilitate some tax uncertainty, but not extremely aggressive positions.⁷ Second, we find that the GAAP ETR results are stronger for U.S. multinationals compared to U.S. domestic firms, and a majority of the tax savings of SPEs comes from avoiding U.S. Federal, rather than foreign or State, income taxes. Our results also hold across several industries, suggesting that SPE-facilitated tax avoidance is pervasive and not simply confined to high-tech or intangible-intensive firms. Third, we mitigate alternative explanations by showing that our results are not driven by: (1) the endogenous choice to use SPEs; (2) the financial reporting of minority owners of SPEs; (3) variation in firms' subsidiary reporting over time; or (4) potential increases in overall organizational complexity.

This study contributes to the literatures on SPEs (Shevlin (1987); Beatty, *et al.* (1995); Feng, *et al.* (2009)) and corporate tax avoidance (see Hanlon and Heitzman (2010)) in three ways. First, we differ from traditional tax avoidance research in that we consider whether, how, and the extent to which tax avoidance is facilitated by increasingly common and uniquely complex organizational *structures*. In doing so, we identify some of the transactions used within such structures to facilitate tax savings, which is relevant to market participants as they analyze firms' tax profiles (Weber (2009)), and to tax authorities as they evaluate enforcement efforts to combat declining corporate tax revenues (Fox and Luna (2005); Inland Revenue (2013); Bozanic, *et al.* (2017); Dyrenge, *et al.* (2017)). Second, by providing the first large-sample estimates of the total tax savings facilitated by SPEs, we clarify inconclusive anecdotal evidence routinely cited by experts (e.g., Zion and Carcache (2003); Soroosh and Ciesielski (2004); Forbes and Sharma (2008)) and researchers (e.g., Chasteen (2005); Desai and Dharmapala (2006); Feng, *et al.* (2009); Zechman (2010)), as well as help move the literature beyond the notion that firms simply *can* use SPEs to facilitate tax savings. Further, while prior research finds that tax incentives are an important—but not leading—determinant of SPE use, we show that SPEs facilitate economically significant tax savings nonetheless. Finally, our study is the first to use both path and moderation analysis to: (1) evaluate the tax effects of organizational structure; and (2) separate level from efficiency effects. It can thus guide future research examining the economic outcomes of other corporate organizational structures.

⁶ U.S. Federal corporate income tax collections totaled approximately \$4.46 trillion from 1997 to 2013 (<https://www.irs.gov/statistics/soi-tax-stats-collections-and-refunds-by-type-of-tax-irs-data-book-table-1>). While our sample spans 1997–2011, our tests use data through 2013 to calculate forward-looking effective tax rate measures.

⁷ Tax aggressiveness is typically considered the use of tax positions that “push the envelope of tax law” (Hanlon and Heitzman (2010)) and is a subset of tax avoidance (Lisowsky, *et al.* (2013)).

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