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Is the Nexus of Corporate and Public Financial Management Institutionalized in Special Purpose Entities?

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Abstract

A novel integration of public and corporate financial theory is used to model capital structure in special purpose organizations. The expectation is that considering the similarities to corporate structure and managerial objectives these organizations will display evidence of an intergovernmental modified pecking order approach to capital structure. The censored probit method suggests that special purpose entities follow an intergovernmental modified pecking order of capital structure, with correct classification in excess of eighty-nine percent. The results support a direct link between intergovernmental revenue and the capital structure of the organization, providing insight into the tie between managerial costs and benefits.

JEL: H77, H83, L91

Keywords: Financial management, capital structure, special purpose entities, fiscal federalism.

Introduction

Since the 1980s, there has been a sweeping wave of organizational, managerial, accounting, and financial reform in the public sector (Christiaens and Rommel 2008). Undeniably, the wave has been striving for a rational economics-defined business point of view for governments, particularly toward information access to user groups with interest in the financial behavior of governments. This wave has spawned literature in accounting, economics and finance with a focus on general purpose governments and school districts (see Jones and Pendlebury 1991; Mosso 1999; Harris 2005; Lee and Plummer 2007; Plummer, Hutchison, and Patton 2007). Analyses have been presented based on the implications of this wave's impact on the financial well-being of governments and the suitability of applying this economics-defined business point of view to governments. Although rich in description of the financial management implications for governments, the theoretical bridge and conceptual framework of this view has been considered underwhelming (Hodges and Mellett 2003; O'Donovan 2002; Johnson and Lapsley 2005; Chan 2003; Premchand 2006; Guthrie 1998; Stanton and Stanton 1998). The public policy literature and the Governmental Accounting Standards Board (GASB) have noted that governments lack conformity with the theoretical underpinnings of for-profit firms, driving a mismatch of the underlying motivation for governments to have similar financial behavior as for-profit firms (Box 1999; GASB 2013). Currently, research has attempted neither to bridge this theoretical gap nor to apply the bridged theory to financial management of governmental organizations.

The purpose of this paper is to bridge the theoretical gap through an integration of corporate and public financial management. The application of this integrated theory provides

an opportunity to examine the capital structure of governmental special purpose entities (SPEs),¹ particularly public transportation SPEs. Similar to the distinguishing characteristic of corporations, whether for-profit or nonprofit, an SPE is a separate legal entity autonomous from its owner (the establishing government) and its managers. SPEs are established outside of the traditional government structure to provide self-supporting or revenue-producing public goods and services, which were often undertaken by private enterprises prior to the establishment of the SPE (Eger 2006). Although an SPE's mission and power is defined by enabling legislation, an SPE is legally distinct from the establishing government. The SPE's method of operation for achieving its mission is beyond government control, regulations, and procedures typically applied to traditional government agencies and organizations. SPEs have autonomous governing boards that are either elected or appointed and are endowed with the power to hire and fire employees, including a manager or chief executive officer. These entities generate, manage, and report their own finances without oversight by the enabling government. In addition, SPEs have the ability to issue debt leveraged against their own assets and earning power (not the full faith and credit of the establishing government) and to charge fees and rents for services rendered (Eger 2006; Eger and Feiock 2010). Overall, these entities are self-governing and self-supporting with financial resources and obligations that are entirely distinct from the establishing government.

Many SPEs that provide public transportation services, which are the focus of this study, exhibit these decidedly corporate characteristics, providing a potential bridge between corporate and public financial behavior. Public transportation SPEs are established to provide the market-

¹ Special purpose entities are defined by the U.S. Census of Governments by the nomenclature "special districts." The U.S. Census of Governments identifies primary governments as composed of counties and subcounties (municipalities, towns, townships, etc.). Special purpose governments are composed of "special districts" and school districts. Therefore, as found in the literature surrounding these governments, this study treats special purpose entities and special districts as synonymous.

oriented services of transit operations and transit infrastructure. These public transportation SPEs have an oversight board. These entities have the right to adopt a corporate name, make their own by-laws, and establish their own offices. In addition, public transportation SPEs can file lawsuits against other entities and can be sued in their own entity name. Most important, these entities have the power to generate funds from services and private money markets free from the political influences often exerted over government agencies (Smith 1990; Mitchell 1991; Doig 1983; Walsh 1978).

The intersection of corporate and public financial management may be seen to reside in the capital structure of SPEs. The literature on capital structure is engaged in a debate that looks at the influence of capital structure and organizational performance. Debt is known to leverage the return on the equity portion of a firm by maximizing potential profits, but debt payments are fixed, intensifying potential losses, forcing the equity holders to take on additional risk. The generally fixed debt payments increase certainty, which reduces the risk born by the creditors. In completely efficient markets the increased risk born by the owners is exactly offset by the risk reduction carried by the debt holders. Therefore, there is no financial incentive to use debt over equity. Modigliani and Miller (1958) were the first to theorize that the firm's choice between debt and other financing sources does not matter if the capital markets are completely efficient. In such conditions, the market value of any firm is independent of its capital structure, as there would be no financial advantage to financing assets through debt or equity.

The federal tax on corporate income treats debt and equity differently and therefore provides a financial incentive for a firm to prefer debt to equity (Myers 1984). Interest costs of debt are deductible for tax purposes while dividends are not. Taken to the limit, tax deductions for corporate interest payments would motivate firms to finance entirely with debt. However, the

cost of financial distress is a disincentive for using debt (Warner 1977; Weiss 1990). As debt outstanding increases, credit risk increases, causing creditors to increase interest rates and demand more collateral, which diminishes the return on owners' equity.

For government organizations, the borrowing of money has occurred over centuries. Government borrowing in perfectly functioning markets, as postulated by Ricardo (1951), indicates that governments and citizens are indifferent between debt and other financing (taxes or equity). This theoretical argument, similar to Modigliani and Miller (1958) in corporate finance, is that the mix of debt and other financing sources would not matter to the citizen/owner. Similar to the empirical literature on corporate structure, the empirical literature indicates that the choice to issue debt in government affects the citizen/owner in multiple ways.

Public debt distributes expenditures over future periods of time. At issue is whether the issuance of debt shifts the tax burden from current taxpayers to future taxpayers, raising questions about the intergenerational equity of debt financing (Barro 1979; Buchanan 1958, 1976). In the empirical literature surrounding the issue of the debt illusion hypothesis, where voters underestimate the present value of debt and therefore view debt as less expensive than tax finance (Buchanan 1964), the results show that the costs of debt issuance is underestimated or even perceived as a benefit by voters (Dollery and Worthington 1995). Even if citizens/owners are aware of future fiscal liabilities, citizens may still prefer bond to tax financing since government organizations are able to borrow at a lower interest costs than private individuals due to the tax benefits associated with the tax exemption of interest earnings at both the federal and sub-federal level. This evidence implies that the method of financing may have real effects on public expenditures.

The background of capital structure implies a trade-off theory for capital structure. This trade-off has been termed “the pecking order theory” based on the Myers and Majluf (1984) argument that what drives the capital structure is asymmetric information. Information asymmetry occurs, in this theory, when managers know more than the rest of the market about their firm’s value. The market is shown to discipline the issuance of equity whose expected payoffs are significantly related to the assessment of such a value. The pecking order theory predicts that companies should use equity to cover financing deficits only as a last resort, after less expensive and less information-sensitive alternatives (like internal cash or debt) have been exhausted.

Applying the intuition behind the pecking order theory with development from the public financial management literature to ensure applicability, the resulting empirical evaluation indicates that SPEs follow an intergovernmental modified pecking order approach to capital structure. The modified pecking order approach can correctly classify over 89% of the SPEs’ decisions to choose internal or external financing. The approach indicates about a 19% improvement over the naïve model’s classification accuracy. A similar, albeit larger, improvement of 22% is found with the debt-local intergovernmental revenue (IGR) decision in which the empirical evaluation indicates a classification rate of about 83%. The empirical outcomes support the notion that this modified pecking order may be applicable to SPEs.

The remainder of the paper derives the structure for SPEs capital financing. This is followed by a discussion of the data, presentation of the results, and the conclusion.

Theory

The intuition behind the theoretical model articulated in Myers and Majluf (1984) and established in Leary and Roberts (2010), can be approached graphically as shown in Figure 1,

where \overline{AB} represents debt financing. The capital structure order indicates that SPEs will finance investments with internal resources (cash and liquid assets), until available internal sources are exhausted at Point A. The intuition underpinning this aspect of the capital investment strategy for governmental entities is offered in the public finance literature with a concentration associated with own-source revenues. This literature indicates that own-source revenue is the primary means of establishing the ability to capital invest (Pagano 1990, 2002), a signal of symmetric information. Demange (2009) demonstrates that own-source revenues underpin pay-as-you-go (PAYG) government social investment, where spending of internal cash is dominant if the decisive voter can be made better off under self-sufficiency, without external assistance. The exhausting of cash in PAYG is an important aspect in capital financing of state governments. Wang, Hou, and Duncome (2007) show that, for states, relaxing the assumptions of the Ricardo-Barro equivalence theorem² indicates a positive effect in state use of PAYG for infrastructure investments, partially attributable to the information symmetry underlying PAYG. Current empirical research supports the theoretical argument posited by Demange's (2009) finding that PAYG has sustainability properties in governments (Wang and Hou 2009; Wang, Hou, and Duncome 2007). The PAYG ideal may be further represented by the policy decision to establish sinking funds, providing identification of set-aside revenues as a response to information asymmetry (Kurtenbach and Vijayakumar 1999).

² In the literature, the Ricardo-Barro Equivalence Theorem operates on the following three assumptions: (1) a single rational agent, (2) a single benevolent social planner, and (3) neutrality of institutions. This ignores the intergenerational aspects of debt or the finite terms of the office holder in governments, leading to the critical assumption that both the agent and the government, a benevolent social planner- with the objective to maximize the welfare of the agent, have infinite time horizons. The agent knows that an increase in debt implies tax increases in the future and will adjust her bequests to offset the implied changes in future tax liabilities. Thus she is indifferent to the debt-tax choice because the two mechanisms are equivalent- debt (long-term) and taxation (current) has no differential impact on personal wealth (see Imbeau [2004] for complete analysis).

[Figure 1 about here]

Defining Point A is an important issue in SPEs. If we assume a strict definition, then Point A is only achieved if all internal sources are completely exhausted. If SPEs behave as the literature suggests, similar to both government agencies and nonprofits (see Axelrod 1992; Doig 1983; Walsh 1978), then the complete exhaustion of internal sources may indicate a prohibited action by management, given that many governments and nonprofits have minimum cash reserve policies. To accommodate for a cash reserve policy, this study defines Point A as follows:

$$0 = Investment_{it} - [Internal\ Sources_{it-1} - (\gamma_{it}^S + u_{it})], \quad (1)$$

where i and t index SPEs and years, u_{it} is a mean zero random variable, and

$$Internal\ Sources_{it} = Fund\ Balances_{it-1} + Cash\ Flow_{it}. \quad (2)$$

Equation (1) implies that SPEs will use internal sources to fund investment up to the point $(\gamma_{it}^S + u_{it})$. This is the point at which the SPE has exhausted internal sources for investment conditional on the existing cash reserve policy, regardless if the policy is SPE imposed, regulatory (Mensah, Considine, and Oakes 1994), or donor imposed (Keating and Frumkin 2003). A strict definition would indicate that $\gamma_{it}^S = 0$; however, the public finance literature indicates that stated policy is influential for financial decision making in public organizations, thereby relaxing the strict assumption.

After exhausting internal sources, debt financing is then implied from Point A until reaching its exhaustion at Point B. The majority of the literature, both theoretical and empirical, indicates that SPEs utilize their own full faith and credit to issue debt (Bennett and DiLorenzo 1982, 1983, 1984; Marlow and Joulfaian 1989). Although this stream of literature focuses on the amount of debt issued by SPEs, the consensus is that SPEs are a vehicle that provides capital infrastructure through the tax-exempt municipal debt market. The implications of marketplace

information asymmetry are proposed in Bennett and DiLorenzo (1982) with the use of SPEs seen as vehicles to circumvent voter approval or awareness of state and local debt issuance. A less adverse approach to SPEs is observed in Hildreth (1993), where SPEs are seen as a strategic choice, instead of a rational choice based on the information asymmetry between issuer, purchaser, and debtor (constituents) as indicated in Bennett and DiLorenzo (1982). Although this sparse literature on SPEs points toward debt issuance outside the purview of the debtor (constituent), a discussion of the trade-off between own-source revenues and debt is not found outside of the research in Eger (2006) and Eger and Feiock (2010). Eger (2006) and Eger and Feiock (2010) focus on the fact that SPEs are not directly governed by the constituent (debtor) through the traditional median-voter or political economy application. In fact, no direct link is found politically between the financial behavior and the voter, with the exception of the indirect effect of the voter on the appointed oversight board structure of the SPE (Eger and Feiock 2010).

The order defines the decision between internal sources and debt as

$$External_{it} = \begin{cases} 1 & Investment_{it} \geq A_{it} \\ 0 & Otherwise, \end{cases} \quad (3)$$

where

$$A_{it} = Internal\ Sources_{it-1} - (\gamma_{it}^S + u_{it}). \quad (4)$$

Equation (3) indicates the initial step of Myers and Majluf's (1984) pecking order: investment is funded by debt ($External=1$) if internal sources are insufficient to provide for the needed investment.

The second threshold, B, is constructed as the point where

$$0 = Investment - (Internal\ Sources_{it-1} - \gamma_{it}^S - u_{it}) - (\gamma_{it}^D + v_{it} - Debt_{it-1}). \quad (5)$$

Equation (5) indicates that SPEs will exhaust their internal sources first and will issue debt in excess of their existing debt level, $Debt_{it-1}$, up to the point $\gamma_{it}^D + v_{it}$. The interpretation of B is that B represents the sum of A and the amount of debt the SPE can issue conditional upon its existing debt level. This allows an SPE to address debt management regardless of the underpinning of the debt level restriction, whether the restriction is self-imposed, regulatory, or debt market-imposed. Using a strict interpretation would lead to the implication that γ_{it}^D is infinite since an SPE would never seek to secure IGR as shown in Figure 1. Research has indicated that the cost of financial distress is a disincentive for using debt (Warner 1977; Weiss 1990). As debt outstanding increases, the credit risk increases, causing creditors to increase interest rates and demand more collateral. This implies that γ_{it}^D is an indicator of an SPE's ability to issue what is referred to as "safe debt" to maintain "reserve borrowing power" (Myers 1984, 589), providing the outcome that $\gamma_{it}^D \neq \infty$.

After exhausting both internal sources and debt, the SPE will turn to equity financing. SPEs cannot issue traditional equity capital, due to their structure. This does not mean that SPEs cannot turn to a market based robust equity capital market. SPEs can turn to IGR, similar to turning to an equity capital market. The IGR can be acquired from investors such as local, state, or federal governments. IGR acquisition follows a similar theoretical cost structure as the equity capital market. The SPE manager's IGR acquisition decision depends on how this decision will affect the SPE's investment choice and how this choice will in turn affect the SPE's post-investment financial condition. The SPE manager is attentive to the financial condition of the SPE immediately after she has invested using the IGR mechanism, while simultaneously assessing the SPE's long-term financial condition. The intergovernmental reaction to the SPE's investment decision depends on whether the intergovernmental investor (local, state, or federal

government) endorses the decision or thinks it is a poor idea. To the degree that the SPE manager can anticipate the agreement between what she thinks is a good project and what the intergovernmental investors think is a good project, she forms an expectation about how the financial condition of the SPE will react when she makes her investment decision. It is this expectation that drives the IGR decision. The central issue is the degree of agreement observed in the manager's financing choice.

The costs associated with the IGR choice are explored within the fiscal federalism aspects of public finance. As noted by Oates (2008) and Volden (2007), the allocation of IGR is undertaken within a competitive market for these funds. Volden (2007) advances a model of intergovernmental competition in which politicians seek to claim credit for providing popular goods, avoiding responsibility for the taxation necessary to pay for such goods, and to advance their policy agendas. The model predicts conditions under which the competition for IGR is specifically tied to the nature of the policy costs placed by the IGR supplier on the IGR recipient, providing some game theoretic detail of when intergovernmental recipients will seek the capital and how their spending levels are affected. The extant literature on local intergovernmental behavior and higher order governments supports Volden's argument. This literature is grounded in traditional fiscal federalism, where information asymmetry is a key component to intergovernmental behavior. Inman (1979) suggest that grants from other levels of government affect communities' fiscal decisions differently than own-source revenues, due to asymmetric information. The exploration of evidence of an asymmetric information response and allocation to intergovernmental capital is present in the empirical and theoretical literature (Stine 1984; Gamkhar and Oates 1996; Volden 1999; Gamkhar 2000). Craig and Inman (1982), who examine the contemporaneous relationship between grants and spending, have noted that since matching

grants have price effects, they cannot simply be combined together with lump sum grants to form a single grants variable. This will lead the SPE to focus on local IGR as it represents a non-matching grant outcome.

The decision between debt and local IGR in the framework is

$$LocalIGR_{it} = \begin{cases} 1 & Investment_{it} \geq B_{it} \\ 0 & A_{it} \leq Investment_{it} < B_{it}, \end{cases} \quad (6)$$

where

$$B_{it} = (Internal\ Sources_{it-1} - \gamma_{it}^S - u_{it}) + (\gamma_{it}^D + v_{it} - Debt_{it-1}).$$

Equation (6) dictates that investment be financed with debt once the needed investment exceeds the available internal sources. At and beyond B_{it} , SPEs will turn to local IGR capital.

Within the framework for SPEs, assume that managers of SPEs are better informed than intergovernmental capital providers—an assumption also made by Myers and Majluf (1984).

For empirical convenience, restate B_{it} as

$$B_{it} = Internal\ Sources_{it-1} - Debt_{it-1} - \gamma_{it}^{D*} + V_{it}^*, \quad (7)$$

where $\gamma_{it}^{D*} = \gamma_{it}^S - \gamma_{it}^D$ and $V_{it}^* = u_{it} - v_{it}$. Substituting Equation (4) into Equation (3) discloses the decision between internal and external sources

$$External_{it} = \begin{cases} 1 & y_{1it}^* \geq 0 \\ 0 & y_{1it}^* < 0, \end{cases} \quad (8)$$

where

$$y_{1it}^* = Investment_{it} - Internal\ Sources_{it-1} + \gamma_{it}^S + u_{it}. \quad (9)$$

Substituting Equation (7) into Equation (6) indicates that the decision between debt and local IGR is managed as follows:

$$LocalIGR_{it} = \begin{cases} 1 & y_{2it}^* \geq 0 \\ 0 & y_{2it}^* < 0, \end{cases} \quad (10)$$

where

$$y_{2it}^* = Investment_{it} - Internal\ Sources_{it-1} + Debt_{it-1} + \gamma_{it}^{D^*} - v_{it}^* \quad (11)$$

Following Leary and Roberts (2010), the error terms u_{it}^* and v_{it}^* are assumed to be distributed bivariate standard normal with correlation ρ , resulting in a model that is a censored bivariate probit. The observable data are governed by the sign of the two latent variables y_{1it}^* and y_{2it}^* with the magnitude of the two latent variables seen as inconsequential. The specification in Equations (9) and (11) imposes, as found in Shyam-Sunder and Myers (1999), the strict theory restriction that the slope coefficients on $Investment_{it}$, $Internal\ Sources_{it-1}$, and $Debt_{it-1}$ are each equal to one. Myers (1984) and Myers and Majluf (1984) recognize the tradeoff between adverse selection costs and the costs of financial distress when too much debt is issued. Under this version of the theory, organizations may issue equity in place of debt when faced with a financing deficit to maintain both liquid assets and debt capacity for future investments. Therefore, as noted in Leary and Roberts (2010), this modified version requires a less restrictive condition, which is the equality of the coefficients in their respective equations. This is a similar restriction found in previous studies (Shyam-Sunder and Myers 1999; Frank and Goyal 2003; Lemmon and Zender 2004; Leary and Roberts 2010). This study follows the prior empirical evaluations across time and organizations, assuming that the SPEs will be heteroskedastic and

correlated. Thus, all continuous variables are scaled using population served³ (Wooldridge 2002).

To stay consistent with the corporate literature (e.g., Myers and Majluf 1984; Chen and Zhao 2003; Hovakimian 2006; Korajczyk and Levy 2003; Leary and Roberts 2005; Leary and Roberts 2010), debt is defined as total debt from period $t-1$ to t , and local intergovernmental capital is defined as local IGR from period $t-1$ to t . To normalize the data, this study uses population served in $t-1$. Consistent with the prior literature, SPEs that neither issue debt nor receive local IGR are assumed to have used internal sources to fund all investments.

Data

Financial data on cash, debt, and IGR for transportation SPEs is not directly available. To address the lack of centralized data, this study combines two data sources. The first source of data is the U.S. Census Bureau, Census of Governments from 1997-2006. Although the comprehensive Census of Governments occurs every five years, the U.S. Census Bureau randomly samples SPEs for the non-census years.

In the Census of Governments data, SPEs are identified through the nomenclature “special district governments.” As defined by the U.S. Census Bureau, special district governments are independent, special purpose governmental units that exist as separate entities with substantial administrative and fiscal independence from general purpose governments. To be identified as a special district government, rather than be classified as a subordinate governmental agency, an entity must possess three attributes: existence as an organized entity,

³ Other analyses have corrected these issues using total assets as the scalar. Since total assets are not consistent across governmental organizations due to the 25 year focus of GASB 34, this study uses population served as an alternative scalar.

governmental character,⁴ and substantial autonomy.⁵ The Census of Governments data is primarily used to assess the financial status of the transit SPEs. The second data source comes from the National Transit Database (NTD) provided by the Federal Transit Administration, U.S. Department of Transportation. This database includes data pertaining to all transit entities, including special districts as defined by the Census of Governments and subordinate agencies of state and local governments. This data source was used primarily to assess population served, density, board membership, and passenger usage. These two data sets do not have common identifiers for the transit SPEs. To address the lack of common identifiers between the data sets, a crosswalk was established based on the FIPS (Federal Information Processing Standard) and the transit identification number (TRS ID). Additionally, the NTD is presented in the full accrual accounting basis since 1993. However, the Census of Governments does not require information to be reported on a full accrual accounting basis. To address this lack of a common accounting basis, all information gathered was manually checked against each entity's comprehensive annual financial report (CAFR) to assure a common full accrual accounting basis for all data. All revenue and spending data are in 1997 constant dollars and normalized on per capita served.

⁴ Governmental character is implied when officers of the entity are popularly elected or appointed by public officials. A high degree of organizational responsibility to the public is also evidence of governmental character, which can be demonstrated by requirements for public reporting or for accessibility of records to public inspection. Governmental character can be met if either the requirement regarding officers or public accountability is fulfilled. Therefore, the Census of Governments attributes this character to any entity having power to levy taxes, power to issue debt that pays interest exempt from federal taxation, or responsibility for performing a function commonly regarded as governmental in nature.

⁵ An entity is determined to have substantial autonomy when it has fiscal and administrative independence, subject to statutory limitations by a state or local government. An entity is fiscally independent when its budget is determined without being subjected to review and detailed modification by local officials or governments. Furthermore, fiscal independence includes the entity's ability to levy taxes for its support, to fix and collect charges for its services, or to issue debt without review by another local government. Administrative independence is closely tied to the selection of the entity's governing body. Administrative independence is determined when the entity has a popularly elected governing body or has a governing body representing two or more state or local governments. Administrative independence can also occur with an appointed governing body, if it performs functions that are essentially different from, and are not subject to, specification by its enabling government.

This study uses all transportation SPEs identified by the U.S. Census as special districts, with service populations of at least 50,000, and sampled during the entire time period 1996-2006, for inclusion in the analysis.⁶ These criteria yielded a sample size of 70 transportation SPEs, which represents 25% of all mass transit entities reported in the 1997 Census of Governments.⁷

Table 1 presents summary statistics for the SPEs. The largest percentage (41%) of financing decisions for SPEs rely on internal funds, followed by debt (37%), and finally by local IGR (22%). A very small minority, less than 1%, uses both debt and local IGR. Average SPE characteristics are presented for each financing event. There is little difference between the average ages of the SPEs for the financing decisions. A characteristic that appears troubling is that SPEs using local IGR financing indicate an average negative fund balance while their average cash and securities balance appears similar to SPEs using internal financing.

[Table 1 about here]

Results

In the empirical models, a set of controls are included that influence the decision of SPEs through market or government imposition. As described in Bertomeu, Beyer, and Dye (2011), it is undesirable to take an organization's financing decisions as given, since the organization's financing decisions change based on disclosure choices. Given that SPE disclosure is both market- and government-imposed, this study controls for disclosure choice by controlling for each SPE's stated sinking fund policy similar to Dunn and Spatt (1984), use of its taxing ability, its current interest costs, and passenger miles. Empirical tests of the positive relation between disclosed information and the cost of capital can be found in Easley, Hvidkjaer, and O'Hara

⁶ Transportation SPEs with a service population of less than 50,000 are not required to report information to the National Transit Database.

⁷ The 1997 Census of Governments identified 34,683 "special district" governments. Of these, 282 were identified as mass transit entities.

(2002) who focus on the information asymmetry between informed and uninformed traders and Botosan (1997) who focuses on the quantity of annual report information.

An additional set of controls, both federal and state IGR, is used to address the concern of the receipt of matching grant intergovernmental capital. Niskanen (1968, 1971, 1979) argues that government organizations are influenced by matching grant funds, where influence can affect both the use of internal revenues and debt issuance. This potential effect is addressed by controlling for matching grants. The control of federal and state IGR is not similar to Stafford's (2001) substitution effect where firms substitute funds raised in the capital market for internal funds. The findings in Stafford (2001) would not affect the empirical implications, given that it does not alter the structural proposition of the hypothesis. Following Leary and Roberts (2010), SPEs will avoid external capital (debt) when investment needed is less than A and will avoid local IGR when investment need is less than B.

To measure the ability of the theory to explain financing decisions for SPEs, the study estimates Equations (8) through (11) using maximum likelihood. Panel A of Table 2 presents the predictive accuracies of each of the models specified. Panels B and C of Table 2 present the corresponding internal-external and debt-local IGR equation parameter estimates for each of the three specified models. As noted in Myers and Majluf (1984) and Myers (2001), the focus is on the debt-equity decision, which is operationalized as a debt-local IGR decision for SPEs. It is this decision that will receive the primary attention in this study.

[Table 2 about here]

To measure the explanatory power of the theory in the financing decisions of SPEs, a naïve model⁸ is estimated that indicates 71.3% of the internal-external decisions and 63.8% of the debt-local IGR decisions are accurately classified. Models I through III indicate that the accuracy of the internal-external decision increases to greater than 89% and the debt-local IGR decision increases to about 83%, when incorporating controls that are effectively indicated under market or government imposition, a substantial improvement over the naïve model. Although Model I's debt-local IGR decision ignores any fixed effects of time, location, or board influence, Models II and III, which include these fixed effects, do not provide any overall apparent improvement in the accuracy of the predictions. As found in Leary and Roberts (2010), the use of a censored bivariate probit appears supported with the correlation of the error terms, identified as ρ , estimated at 0.68 and highly statistically significant in the empirical model (p-value .001).

The lack of an influence of the fixed effects, particularly the board, is consistent with Eger and Feiock (2010) where the implications of board structure and composition on fiscal performance of sub-municipal organizations did not influence the usage of revenue sources, regardless of the services provided by the SPEs. The fixed effect outcome follows the literature of Deno and Mehay (1987), Hayes and Chang (1990), and Campbell and Turnbull (2003), finding minimal or no effect on financial behavior between different forms of government. This finding is counter to work by Turnbull and Geon (2006), which indicates, in a principal-agent framework, that appointed officials are more cost conscious because they are less concerned with politics and less influenced by interest groups. The fixed effect outcomes are consistent with Leary and Roberts (2010) for time and are consistent with Leary and Roberts (2010) and Frank

⁸ The naïve model is based on a guess in which one could always predict the more common outcome and be right the majority of the time, without knowing anything about the predictors.

and Goyal's (2009) empirical outcomes regarding firm characteristics as determinants of corporate capital structure.

Turning the attention to the parameter outcomes, the probability of using external funds and local IGR are positively correlated with the financing deficit that is captured by the PO variable (noted as 0.0059 and 0.0002 in Panels B and C respectively in Model I). The positive correlation for PO holds consistently across all the specified models. The initial sign for γ^s in Model I seems counterintuitive since it represents the mean level of cash holdings for transportation SPEs which should be strictly positive. However, as noted in the literature on governmental finance and accounting, it is possible for governments to have temporarily negative cash holdings, which can increase taxes (Gore 2006). In general, the controls for disclosure and matching grants are statistically significant. All three models indicate a positive relationship between matching grants and the financing decisions of SPEs. The debt-local IGR decision in Model I indicates that neither taxing ability nor interest costs statistically impact the decision. That said, the results show that interest costs are always negatively related to the decision, and the ability to tax is always positive across the models, an outcome that is intuitively consistent.

Conclusion

The interest in the financial behavior of SPEs, centered on their corporate-like structure, leads to a proposition that their financing decisions would follow their organizational structure. Using a novel interaction between public and corporate financial decisions, the resulting theoretical application and empirical assessment provide a look at the financial decisions of these governmental organizations using the intuition underlying the theory. To assure applicability, the theoretical presentation incorporates the public finance literature along with the fiscal

federalism literature to assess the foundation of local intergovernmental revenue as a form of equity. The resulting empirical evaluation shows that these groups of SPEs follow what could be termed an intergovernmental pecking order approach to capital structure. The approach can correctly classify over 89% of the SPEs' financing decisions between choosing internal or external financing and about 83% of debt-local IGR financing decisions. The theoretical and empirical outcomes support the notion that this intergovernmental pecking order approach may be applicable to governmental organizations. Finally, although their enabling governments may subsidize transportation SPEs through matching grants, financial decision making appears to be more independent than thought.

This study has limitations, however. Most significant is that although a random sample of transportation SPEs was obtained, the applicability to all SPEs has not been assessed in this study. Thus, unlike the revenue and expenditure analysis of differing types of SPEs found in Eger and Feiock (2010), the broader application of the intergovernmental pecking order to all SPEs may be limited. This limitation may be addressed as future research explores the financial behavior of these off-budget governmental organizations (Bennett and DiLorenzo 1982).

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Figure 1: Graphical representation SPE Capital Structure

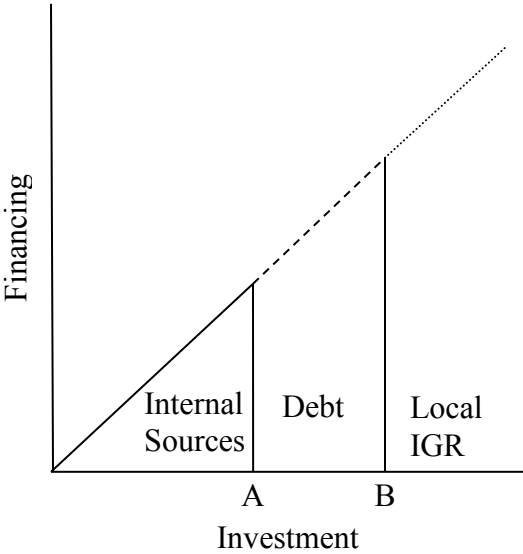


Table 1: Financing Decisions and SPE Characteristics						
Financing Decision	% of Observations	Investments	Cash Balance	Cash Flow	Fund Balance	Age
Internal	40.9%	30.6	76.7	59.7	5.5	28.3
Debt	36.9%	18.2	44.6	29.2	1.0	28.3
Local IGR	21.6%	37.2	75.1	45.8	(6.2)	30.2
Debt & Local IGR	0.6%	79.3	107.4	76.0	(8.9)	29.5

The sample is drawn from the Census of Governments with all variables normalized by population served with the exception of age. Debt issuance is defined as a change in total debt (long-term + short-term) from year $t-1$ to t divided by population served. Local IGR in year t is defined as local IGR in t minus local IGR in $t-1$. Investments are defined as the sum of capital outlays plus investments in year t ; Cash balance is defined as cash and marketable securities in year t ; Cash flow for year t is defined as net change in cash and cash equivalents; Fund balance is defined as unrestricted net assets in $t-1$; age is defined as the number of years since a given SPE was established by the enabling government.

Table 2: Parameter Estimates						
<i>Panel A: Prediction Accuracy</i>						
	Model I		Model II		Model III	
Internal	89.78%		90.65%		90.79%	
External	90.12%		91.52%		90.48%	
Correctly Classified	89.86%		90.86%		90.71%	
Debt	83.04%		82.79%		82.93%	
Local IGR	84.43%		84.17%		85.00%	
Correctly Classified	83.29%		83.02%		83.29%	
<i>Panel B: Parameter Estimates</i>						
<i>Internal - External Decision</i>						
	Coefficient	<i>t</i> -stat	Coefficient	<i>t</i> -stat	Coefficient	<i>t</i> -stat
Constant (γ^S)	-2.5017	-8.25	0.1413	8.07	0.1476	6.99
PO	0.0059	5.26	0.0063	5.28	0.0064	5.34
Sinking Fund	0.8314	3.99	0.7956	3.84	0.8140	3.95
Taxing Ability	0.2530	1.87	0.4512	2.45	0.4652	2.49
Interest	-0.9114	-3.25	-0.9181	-3.51	-0.9461	-3.09
Passenger Miles	0.0062	6.26	0.0067	6.06	0.0069	6.43
Federal IGR	0.0547	4.21	0.0568	4.17	0.0568	4.24
State IGR	0.0097	2.15	0.0098	2.21	0.0100	2.27
<i>Panel C: Parameter Estimates</i>						
<i>Debt - Local IGR Decision</i>						
	Coefficient	<i>t</i> -stat	Coefficient	<i>t</i> -stat	Coefficient	<i>t</i> -stat
Constant ($\gamma^D - \gamma^S$)	-2.4917	-8.24	-0.1014	-8.05	-0.0979	-6.98
PO	0.0002	3.44	0.0001	2.88	0.0001	2.99
Sinking Fund	0.8577	4.08	0.7953	3.83	0.8140	3.95
Taxing Ability	0.2046	1.50	0.4481	2.43	0.4624	2.46
Interest	-0.9512	-1.33	-0.9230	-3.52	-0.9556	-2.84
Passenger Miles	0.0062	6.23	0.0067	6.05	0.0069	6.41
Federal IGR	0.0542	4.19	0.0566	4.16	0.0567	4.19
State IGR	0.0097	2.15	0.0097	2.20	0.0100	2.27
<p>The sample is drawn from the Census of Governments with all variables normalized by population served. The table presents the prediction accuracy results and parameter estimates for the censored bivariate probit. PO is defined in Panel B as Investment minus Internal Funds in the External equation and in Panel C as Investment minus Internal Funds plus Debt in the Local IGR equation. Sinking Fund is defined as 1 if an SPE has a sinking fund policy and 0 if it does not; Taxing Ability is defined as 1 if the SPE has taxed its population served and 0 if it does not; Interest is defined as Interest Expense in year t divided by Total Debt in year t; Passenger Miles is defined as the total number of miles traveled by the SPE's physical assets in year t; Federal IGR is defined as federal intergovernmental matching revenue in year t, and State IGR is defined as state intergovernmental matching revenues in year t. Fixed effects are identified by three variables, Region as defined by the U.S. Census, Time, and Board as defined by the Census of Governments. $I(x)$ is defined as an indicator variable. Model I is defined in Panel B as:</p>						

$$External_{it} = \gamma^S + \beta_1 PO_{it} + \beta_2 SinkingFund_{it} + \beta_3 TaxingAbility_{it} + \beta_4 Interest_{it} + \beta_5 PassengerMiles_{it} + \beta_6 FederalIGR_{it} + \beta_7 StateIGR_{it} + u_{it}$$

Model II in Panel B as:

$$External_{it} = \gamma^S + \beta_1 PO_{it} + \beta_2 SinkingFund_{it} + \beta_3 TaxingAbility_{it} + \beta_4 Interest_{it} + \beta_5 PassengerMiles_{it} + \beta_6 FederalIGR_{it} + \beta_7 StateIGR_{it} + \sum_{j=1}^J \alpha_j I(Region = j) + \sum_{t=1}^T \lambda_t I(Time = t) + u_{it}$$

Model III in Panel B as:

$$External_{it} = \gamma^S + \beta_1 PO_{it} + \beta_2 SinkingFund_{it} + \beta_3 TaxingAbility_{it} + \beta_4 Interest_{it} + \beta_5 PassengerMiles_{it} + \beta_6 FederalIGR_{it} + \beta_7 StateIGR_{it} + \sum_{j=1}^J \alpha_j I(Region = j) + \sum_{t=1}^T \lambda_t I(Time = t) + \sum_{b=1}^B \delta_b I(Board = b) + u_{it}$$

Models I–III in Panel C are defined identically to Panel B with $LocalIGR_{it}$ as the left-hand side variable and $(\gamma^D - \gamma^S)$ as the constant.