

Agency Problems in Public Management:
Evidence from Debt Management Function

By

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Abstract

In recent years several state and local governments have reformed their financial management practices by placing greater restrictions on the sale and management of government debt including practices related to debt refinancing. The escalating use of these debt restrictions is predicated on the belief that there may be a pervasive principal-agent problem between taxpayers and public financial managers. That is, in light of recent perceived debt management abuses in several states, some conjecture that the interests of government financial managers (i.e., agent) acting on behalf of elected officials may not be aligned properly with the debt management goals of the public (i.e., principal). Hence, statutory debt restrictions are needed to ensure that a public financial manager's actions reflect the desires and policy goals of the public, which, in this case, are assumed to be the long-term cost efficient and effective management of state debt. However, there is concern that these debt restrictions may not be costless. That is, they may lead to more prudent management of government debt in certain circumstances but, at other times, debt restrictions, including limits on bond refinancing, may unduly restrict public financial managers and lead to a less efficacious debt management program thus undermining the principal's goals.

Given the potential negative impact of debt restrictions, it would be instructive for policymakers to know if a pervasive principal-agent problem does exist between taxpayers and state public financial managers that would warrant the use of such managerial control mechanisms. This research study aims to empirically determine 1) whether there is widespread evidence to support the existence of such a principal-agent problem in the debt management function related to bond refinancings and 2) what factors are associated with one specific bond refinancing policy decision, the savings structure decision, which seems to be potentially plagued by agency problems. In addition to providing a better understanding of public management behavior, this paper also aims to illuminate some of the policy implications from such behavior and offers some potential managerial actions (e.g., use of a formal debt policy, employment of independent financial advisors, etc.) that could blunt the persistence of this agency problem as a more flexible and efficient policy alternative to the recent draconian statutory restrictions on public financial management behavior.

I. Introduction

In recent years several states including New York, Illinois and Wisconsin have reformed their financial management practices by placing greater restrictions on the sale and management of government debt including practices related to debt refinancing. The escalating use of these debt restrictions is predicated on the belief that there may be a pervasive principal-agent problem between taxpayers and public managers. That is, in light of recent perceived debt management abuses in several states, some conjecture that the interests of public financial managers (i.e., agent) acting on behalf of elected officials may not be aligned properly with the debt management goals of the public (i.e., principal). Hence, statutory debt restrictions are needed to ensure that a public financial manager's actions reflect the desires and policy goals of the public, which, in this case, are assumed to be the long-term cost efficient and effective management of state debt¹. However, there is concern that these debt restrictions may not be costless (Luby, 2009). That is, they may lead to more prudent management of government debt in certain circumstances but, at other times, debt restrictions, including limits on bond refinancing, may unduly restrict public financial managers and lead to a less efficacious long-term debt management program thus undermining the principal's goals.

Assuming the costs from these debt management restrictions may be potentially high, it would then be instructive for policymakers to know the extent of the principal-agent problem that exists between taxpayers and state public financial managers to determine the necessity of such managerial control mechanisms. If the width and depth of this principal-agent problem in the management of state debt is large, then the debt restrictions may be warranted. On the

¹ This can be evidenced in the words of Illinois State Senator Steven Rauschenberger (R) who commented on the need to rein in the state budget team with a series of debt management reforms in 2004: "We would be very uncomfortable giving them free rein again. They are going to be on a tight leash for some time. They are going to continue to get a straightjacket out of our wardrobe." (Shields 2004)

contrary, if there is no evidence of a pervasive principal-agent problem, it may be in the best interests of the state or local government to limit these restrictions and provide greater flexibility to their debt managers.

II. Research Question

This study's research question is premised on the concern that recent statutory debt restrictions may lead to significant costs to state and local governments as it relates to the effectiveness and efficiency of their debt management programs. More specifically, if these bond refinancing debt reforms are found to potentially carry significant costs to state and local governments, it would be instructive to know the necessity of these debt restrictions in ensuring the prudent management of government debt. That is, is there evidence of a pervasive principal-agent problem that would warrant the use of restrictive and potentially costly public managerial control mechanisms such as statutory bond refinancing restrictions? The study will address this research question by investigating a common decision in this area of debt management, the refinancing savings structure decision, as well as the factors that influence this decision. This study's analysis of bond refinancing attempts to shed light on managerial decision-making in an area of public financial management that generally lacks transparency yet offers bureaucratic autonomy and, thus, investigates a policy area where, at least theoretically, agency problems are most likely to be common and pervasive if they do in fact exist. The specific test of the research question needs further explanation and is discussed in the next few paragraphs.

Refinancing savings structure decision: Like individuals, it is common for state and local governments to take advantage of lower interest rates by refinancing some of their existing debt obligations. Similar to an individual's refinancing of his/her home mortgage, state and local

governments often sell bonds in favorable interest rate environments and use the sale proceeds to retire higher interest debt which usually results in equal or proportional annual principal and interest (P&I) savings to the state or local government. However, many state and local governments are not required to structure the refinancing bonds to achieve equal or proportional annual principal and interest savings. That is, many government entities can structure the refinancing such that the principal and interest savings all occur in the first year or first few years after the refinancing bonds are issued with the subsequent years realizing little or no debt service savings. This type of refinancing structure is known as an “upfront savings structure” or in the parlance of home mortgage finance a “cash-out refinancing.” In general, an equal annual or proportional principal and interest savings structure provides greater long-term budget relief while an upfront savings structure offers enhanced budgetary flexibility in the short-term thus making an upfront structure attractive to the often short-range budgetary perspective of politicians. Table 1 below provides a hypothetical example of the difference in annual principal and interest payment savings under two refinancing savings structures, equal annual savings and upfront savings.

TABLE 1
Annual Principal and Interest Savings by Refinancing Bond Structure

Year	Refinanced Bonds P&I	Refinancing Bonds P&I (Equal Annual Savings Structure)	Refinancing Bonds P&I (Upfront Savings Structure)	Annual Savings (Equal Annual Savings Structure)	Annual Savings (Upfront Savings Structure)
2009	\$10,000,000	\$9,500,000	\$8,500,000	\$500,000	\$1,500,000
2010	\$10,000,000	\$9,500,000	\$8,500,000	\$500,000	\$1,500,000
2011	\$10,000,000	\$9,500,000	\$8,500,000	\$500,000	\$1,500,000
2012	\$10,000,000	\$9,500,000	\$10,000,000	\$500,000	\$0
2013	\$10,000,000	\$9,500,000	\$10,000,000	\$500,000	\$0
2014	\$10,000,000	\$9,500,000	\$10,000,000	\$500,000	\$0
2015	\$10,000,000	\$9,500,000	\$10,000,000	\$500,000	\$0

2016	\$10,000,000	\$9,500,000	\$10,000,000	\$500,000	\$0
2017	\$10,000,000	\$9,500,000	\$10,000,000	\$500,000	\$0
2018	\$10,000,000	\$9,500,000	\$10,000,000	\$500,000	\$0
Total	\$100,000,000	\$95,000,000	\$95,500,000	\$5,000,000	\$4,500,000

As shown in Table 1, compared to the equal annual savings structure, the state or local government receives greater savings in each of the first three years under the upfront savings structure (\$1,500,000 compared to \$500,000) but realizes lower savings in each of the subsequent years (\$0 compared to \$500,000). Moreover, the total savings over the course of the bond issue is less for the upfront savings structure (\$4,500,000) than the equal annual savings structure (\$5,000,000), which reflects the greater bond structuring efficiency of the equal annual savings structure². Another problem with the upfront savings structure relates to structural budget deficits and the use of one-time revenue sources. By taking all of the refinancing savings upfront (or over the first couple years), the state or local government is effectively utilizing a one-time (or short-term) revenue “shot” to fund its budget. In this example, after year 3, the government entity will either have to replace the \$1,500,000 in savings with some other revenue source or cut such amount from its annual operating budget going forward since there will be no annual principal and interest savings associated with the refinancing starting in year 4. In austere budget times, this use of the short-term budget shot may put further strain on the government’s operating budget when the annual savings disappear in year 4. Even in the presence of strong revenue growth and a balanced budget, the use of such a short-term revenue shot provides the perception that the government entity has greater resources than it actually does (at least on a longer-term basis) which provides an artificial incentive to increase spending from its operating budget in the short term. This perception of greater funding than is really sustainable in the

² Upfront refinancing structures usually entail refinancing near-term principal maturities known as “structuring bonds.” Utilizing these structuring bonds in a refinancing result in the efficiency loss.

longer term is known in the public finance literature as the theory of fiscal illusion.

On the basis of decreased efficiency and structural budget deficit considerations, organizations such as the Government Finance Officers Association (GFOA) discourage debt managers from structuring refunding bonds on an upfront savings basis (GFOA 1995). Nevertheless, there is anecdotal evidence that many state and local governments structure their refinancing bonds to achieve upfront principal and interest savings³. The most plausible explanation for the continued use of this practice relates to the ongoing fiscal stress that most state and local governments continue to face. In this seemingly unending era of budget austerity at the sub-national level in the United States, new tax adoptions and/or existing tax increases remain anathema to most state politicians mostly out of concern for their future electoral prospects (Berry and Berry 1992, 716). However, spending demands on state and local governments continue to rise at a pace that outstrips the current inflation rate. Without the constitutional or statutory ability to explicitly borrow funds to close this seeming mismatch between current revenues and ongoing expenses, elected officials and financial managers have often turned to “innovative” financing devices such as non-traditional bond refinancings to provide sizable upfront savings to help fund state and local government services in the short-term. In this policy environment, the elected official chooses an alternative policy option (debt refinancings with savings structured on an upfront basis) to meet his interests (i.e., lower principal and interest payments in the short-term so as to avoid the possible electoral wrath of the public often associated with tax increases or draconian spending cuts) at the expense of his principal’s interests (i.e., lower principal and interest payments over the long-term).

Theoretically, principal-agent problems are said to exist when management activities

³ Luby, “Reforming Debt Management Practices: The Case of Illinois, 2004” *Municipal Finance Journal* vol. 30 no. 9 Spring 2009.

involve delegated bureaucratic decision-making and are plagued by information asymmetry, and thus, allow for the prospect of moral hazard (i.e., the theoretical components of agency theory). The decision on how to structure refinancing bond savings, a subtle but important public financial management choice, meets these requirements. More specifically, many state and local governments allow public financial managers to capture the timing of refinancing bond savings in any permutation: upfront, equal in every year, proportional, back-loaded, etc. (i.e., there exists bureaucratic delegation). Moreover, the refinancing savings structure decision is not readily transparent to the principal since many states do not proactively provide nuanced information about their bond sales to the public (i.e., information asymmetry is present). Finally, the temptation to structure refinancing savings upfront may be strong for public financial managers since it provides elected officials the ability to increase spending, cut taxes, or avoid painful spending cuts in the near term. However, the cash infusion from upfront refinancing savings effectively serves as one-time (or short-term) revenue infusion, which combined with any of the aforementioned budget decisions, will only exacerbate or help cause a structural budget deficit (i.e., prospect of moral hazard). Thus, the use of an upfront refinancing savings structure offers evidence of a classic principal-agent problem in public financial management.

III. Literature Review

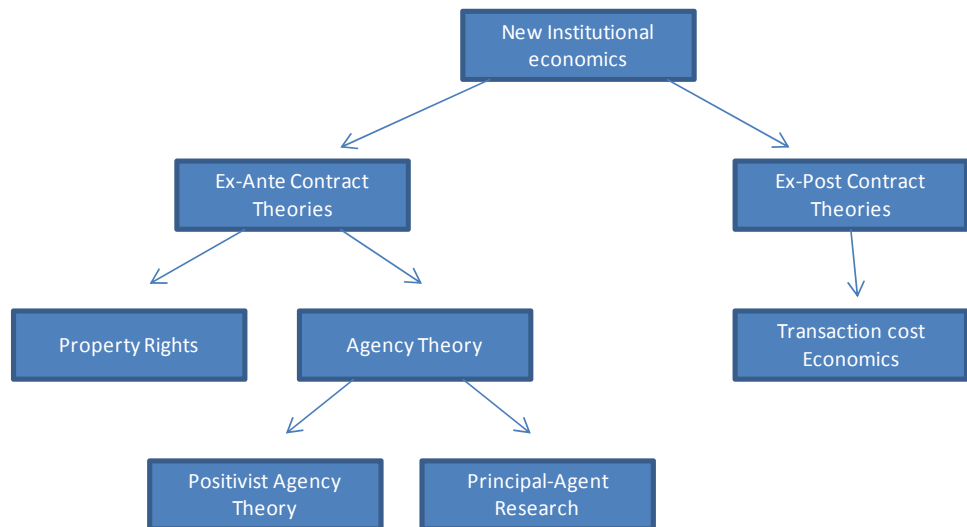
Theoretical Framework Literature Review: Principal-agent theory, one of the economic models of organizational behavior, is the theoretical framework that will be employed to frame the second research question in this study. Pfeffer describes five models of action and choice that are prominent in organization studies: 1) economic model, 2) social model, 3) retrospectively rational model, 4) moral model, and 5) cognitive, interpretive model (Pfeffer

1997, 42). The variants of the economic model share three basic features. First, these models assume that behavior is rational, based on the maximization of one's utility function. Second, organizational behavior is assumed to simply be an aggregation of individual preferences and actions. Finally, economic models stress comprehensiveness with a presumption of equilibrium that eschews path-dependence (i.e., past actions are critical to understanding the present and predicting the future) (Pfeffer 1997, 45). Pfeffer nicely contrasts the economic model with the other four models of organizational behavior. All four of these organizational behavior models offer strong criticisms of the economic model and attempt to address the limitations of such model. Thus, it should be noted that while this study utilizes a variant of the economic model in explaining public sector management behavior, such behavior might also be explainable using one of the other four models.

Principal-agent theory focuses on the actions of two types of parties: 1) a principal and 2) an agent. The agent performs actions on behalf of the principal with the assumption that these actions are in the best interest of the principal (Donaldson 1990, 369). A principal-agent problem exists when the interests of the principal and agent diverge. This event often occurs when it is either too expensive or too difficult from a practical standpoint to effectively monitor the behavior of the agent (Pfeffer 1997, 46). Thus, opportunism (or "self-interest with guile") is assumed to exist in principal-agent theory whereby agents have "opportunities to misrepresent information and divert resources for personal use (Nilakant and Rao 1994, 650)." In the event that a principal-agent problem is found to exist in the analysis of public sector financial management decisions, this study utilizes agency theory to explain such behavior. That is, elected officials (the agent), acting through their financial managers, make policy choices to divert the resources of the taxpayers (the principal) for personal gain. In this context, personal

gain refers to the elected official increasing his/her reelection chances through the use of an upfront refinancing savings structure thus reducing the necessity of having to make potentially unpopular policy choices such as raising taxes or cutting government services.

Within agency theory, there are two main branches, positivist agency theory and principal-agent research⁴. Positivist agency theory, which is



mostly non-mathematical, focuses on the problem of separation of ownership and management in a firm and the strategies owners can use to discipline these managers (Fama 1980, 280). Principal-agent research, which is very mathematical in its formulation, focuses on the design of effective ex-ante employment contracts and information systems under the assumption that agency problems exist and are severely problematic. To date, the majority of research on agency theory has fallen into the positivist branch whereas the principal-agent branch has received less attention. As such, most of the agency theory research has not focused on a theory of performance evaluation but rather a theory of human behavior (Nilakant and Rao 1994, 651). The chart on the previous page categorizes the theories of new institutional economics.

According to Williamson, transaction cost economics and agency theory share both commonalities and differences. Common to both theoretical streams are the topics of managerial

⁴ Some scholars do not make a distinction between the branches of principal-agent theory except to point out that some principal-agent theory research is more mathematically based than other principal-agent theory research

discretion (both take exception to the firm as a production function), efficient contracting (both look at alternative forms of organization), and an endogenous board of directors (both assume that a board of directors is endogenous and serves as a control function). The primary differences include unit of analysis (transaction versus individual agent), approach to costs (ex-post versus ex-ante), and organizational forms (transaction costs focuses on ex-post dispute resolution whereas agency theory does not) (Williamson 1988, 567). While transaction cost economics is employed somewhat in the public administration literature, agency theory far surpasses it in total usage. As such, the remaining discussion on the theoretical framework of this study will focus on agency theory.

According to Ross (1973), the relationship of agency is “one of the oldest and commonest codified modes of social interaction” with examples of agency universal including contractual relationships between employee and employer and the state and the governed (Ross 1973, 134). The premise behind agency theory is that organizations are just legal entities that serve as the nexus for a set of contracting relationships among individuals (Jensen and Meckling 1976, 310). As mentioned in the first section of this paper, agency theory is concerned with two types of problems: the agency problem and the risk-sharing problem. The agency problem exists when there is goal incongruity between the principal and agent and where monitoring the behavior of the agent is either difficult or very expensive. The risk-sharing problem is present when there is a difference in risk preference between the agent and principal. Based on these two problems, the focus of agency theory is on structuring the contract between the principal and agent that maximizes the welfare of the principal (Ross 1973, 134). In other words, agency theory aims to determine contractual arrangements that will minimize agency costs.

Jensen and Meckling provide three categories of agency costs: 1) the monitoring

expenditures of the principal, 2) the bonding expenditures by the agent, and 3) the residual loss (Jensen and Meckling 1976, 308). Monitoring expenditures consist of direct costs related to the principal's monitoring of the agent's behavior such as cost accounting measures, budgeting systems or additional layers of management. In certain situations, it is impossible to monitor the behavior of an agent and, in other situations, it is possible but costly. Bonding costs refer to payments the principal will make to the agent for the agent to expend resources to guarantee that its actions that will not harm the principal or reimburse him/her in the event of harm. However, it should be noted that, based on the underlying premises of agency theory, it is impossible for the principal to make a payment that will ensure that the agent acts in the best interest of the principal in all situations and at all times. Residual loss refers to the dollar equivalent of the principal's welfare loss from the divergence between the agent's actions and those actions that would maximize the principal's welfare (Jensen and Meckling 1976, 308).

Based on these costs, agency theory deals with two types of control: 1) behavior-based and 2) outcome-based. Behavior-based control refers to contractual features such as salaries and hierarchical control structures that may be optimal when the behavior of the agent is observed. Outcome-based control refers to contractual features such as commissions, stock options, and market control mechanisms that may be optimal when the behavior of the agent is not observable but performance outcomes may be (Eisenhardt 1985, 136). Agency theory contrasts the second type of control, when information is incomplete and principal/agent preferences may be divergent, with the first type of control, when information is complete, in determining the optimal contractual arrangement between the parties. Complete information results in a "first best contract" which often consists of a wage contract. Incomplete information results in a "second best contract" which usually consists of an outcome-based compensation package such

as commissions (Levinthal 1988, 157). The “second best contract” is inherently inefficient because some of the risk is shifted from the risk-neutral principal to the risk-adverse agent. Agency theory offers three approaches to mitigate the efficiency loss from moving from the first to second best contract: 1) develop more detailed monitoring structures so an agent’s behaviors become more observable, 2) base agent’s compensation over a number of time periods so role of chance can be reduced and 3) base agent’s compensation relative to other agent’s performance (Nilakant and Rao 1994, 654).

In evaluating optimal contractual arrangements, agency theory makes some basic assumptions about human behavior and the availability of information. First, principal-agent theory is premised on the notion that principals and agents will act in their own self-interest to maximize their welfare. Second, it is assumed that the principal is risk-neutral and the agent is risk-adverse. The third assumption is that information about the agent, related to both its potential to perform a task and its actual actions, can be purchased (Nilakant and Rao 1994, 653). Based on these underlying assumptions, agency theory is based on a formal mathematical model that can be distilled down into the following short equation:

$$x = X(a,t)$$

Where:

x = outcome

a = agent action chosen from a set of given possible actions

t = exogenous random variable

In essence, the equation above states that the payoff to the principal is a function of the agent’s action and some random element related to the state of the world not controllable by the principal or agent (Ress 1985, 3). In exchange for this outcome, the agent is paid a fee by the principal. While the principal’s utility is solely determined by the agent’s action and the exogenous random variable, the agent’s utility is determined by its action and the fee payment

from the principal. The focus of agency theory is in developing a fee schedule that induces the agent to take actions that maximize the welfare of the principal. In addition, the model above makes two important assumptions that guide agency theory. First, for any value of t , greater effort by the agent produces a greater level of welfare for the principal. Second, the only party that can directly influence the probability distribution of the outcome is the agent (Nilakant and Rao 1994, 653). Based on these two assumptions, agency theory can really be boiled down to a theory of agent performance. That is, a principal's sub optimal welfare position can be solely attributable to the agent's performance for a given a random state of nature.

Principal-agent theory has been developed and utilized in many of the social and business sciences including economics, political science, accounting, finance, and business law. However, there has been a dearth of research using principal-agent theory to study behavior in public sector organizations (Simonsen and Hill 1998, 73). Bendor offers an overview of principal-agent modeling in the public sector and concludes that its use is in the nascent stage (Bendor 1990, 353). However, Bendor believes that scholars will increasingly use principal-agent theory to model public sector organizational behavior while offering some cautions in its use in public sector studies. According to Bendor, the utility of principal-agent theory in the public sector is limited due to four features of public organizations: 1) difficulty of assigning an utility value to the parties, 2) lack of commitment to incentive and control schemes on the part of the principal due to budget limitations and short political time horizons, 3) the existence of multiple principals in the public sector, and 4) the limited applicability of rationality assumptions to the public sector (Simonsen and Hill 1998, 75).

Worsham, Eisner and Ringquist (1997) have also questioned the relevance of principal-agent theory to the public sector. These authors suggest that the theory needs to be modified to

better understand behavior in public sector organizations. Generally speaking, Worsham et al. argue that principal-agent theory must start from the assumption that public sector processes involve many agents working within an organizational setting where disequilibrium is normal and policy is dynamic (Worsham et al. 1997, 419). In comparing public and private organizations, Knott (1993) notes the similarities of these organizations with respect to problems of interdependence, information asymmetry, conflict of interest and uncertainty of the external environment (Knott 1993, 104). Knott argues that these similarities in conjunction with the fact that agency theory has been widely utilized in private sector organizational studies provide a justifiable rationale for applying principal-agent theory to the public sector.

Application Literature Review Plan: Analysis related to this study's research question will seek to rely on and add to two different strands of applied empirical literature. First, this study will rely on and seek to advance the empirical literature on bond refinancing of municipal debt. Although there really is a dearth of studies related to state and local government bond refinancing activities, there is some research on refinancing activities related to optimal efficiency, timing, and strategy (Kalotay, Yang and Fabozzi 2007; Kalotay and May 1998; Hildreth 1993). This study will add to the literature by advancing the field's understanding of the extent of different bond refinancing structures as well as the factors associated with the use of these structures.

Second, this study will also aim to add to the public management empirical literature that utilizes economic models and, more specifically, agency theory as a means of understanding public financial management decision-making. There are several research studies that have at least tangentially utilized agency theory to explain public financial management decision-making. This stream of research includes Bhagat and Frost (1986), Johnson (1992), Miller

(1993), Vijayakumar (1995), Leonard (1994; 1996), Simonsen and Kittredge (1997), Simonsen and Robbins (1998), Robbins and Dungan (2001), Peng and Brucato (2003), and Kriz (2003). This research study will explore and discuss this prior research, which by and large does not directly test the research question of whether there exists a pervasive principal-agent problem in the debt management practices of state governments. Simonsen and Hill (1998) is the most prominent research study to date that has attempted to explicitly use agency theory to understand public sector financial management decisions. Their study utilizes a survey of city and county government finance officers in trying to determine whether there is evidence of a principal-agent problem in the issuance of municipal bonds. Simonsen and Hill focus on six debt management decisions in their study: 1) choosing to use debt or other available cash, 2) choosing the debt security, 3) selecting the financial advisor, 4) selecting the bond sale method, 5) choosing an underwriter under a negotiated sale, and 6) choosing a debt structure. Based on the results of their survey instrument, Simonsen and Hill concluded that there is evidence of a principal-agent problem whereby they found that 1) relationships with underwriters is often more important than low interest rates, 2) use of negotiated sales were often not driven by the desire to achieve low interest rates, 3) municipal bond proceeds were often used in lieu of tax increases to raise revenues, and 4) alternative debt securities were often chosen to avoid the need for voter approval rather than to achieve lower borrowing costs (Simonsen and Hill 1998, 81).

One possible limitation to Simonsen and Hill's study relates to the validity of their survey instrument. For each of the debt management decisions, the respondents were asked to rank various factors on a scale of one to five in making the decision. From these rankings, the researchers reached conclusions about whether there was evidence of a principal-agent problem in each of these decision points. However, the conclusions that Simonsen and Hill reached on

some of the questions may be problematic. For example, Simonsen and Hill found that a “previous working relationship” was the single most important reason for choosing an underwriter with “obtaining the lowest interest rate” only the fifth most important reason. The authors conclude from this data point that there is evidence of a principal agent problem whereby benefits may be accruing to the finance official or elected official and not the citizen. However, it could be argued that the reason a previous working relationship was most influential is that the finance officer was satisfied with the performance of the underwriter on past bond sales. That is, the finance officer may believe that the preferred underwriter obtained the lowest rates possible for the government entity on previous bond sales. If this were the case, it would be quite natural for the finance officer to cite a previous working relationship as the most important reason in using an underwriter.

In addressing this study’s second research question, this paper attempts to address the apparent limitations of Simonsen and Hill’s study in drawing inferences from debt management decisions. Rather than relying on survey responses in determining whether agency problems plague debt management decisions, this study looks at the actual behavior (i.e., debt management decisions) of public sector financial managers to observe any evidence that a principal-agent problem may exist. The rest of the proposal will outline the technical aspects of this study’s research design.

IV. Data and Research Methods

The research question related to the necessity of statutory debt refinancing restrictions involves econometrically analyzing the refinancing savings structure debt management decision.

Data and dependent variable: This study analyzes a policy choice that debt managers

commonly make: deciding whether to structure refinancing bonds on an upfront savings basis or not. Thus, the “dependent” variable that will be evaluated in this part of the research design is the degree of upfront refinancing savings (symbolized in the statistical model as REFSTRUCSAV). From an operational standpoint, the dependent variable is ordinal in nature ranking the level of upfront savings on a bond issue on a scale of “substantial”, “somewhat” and “non.” A refinancing bond issue will be classified as having a “substantial” upfront savings structure” if at least 90% of the annual principal and interest savings occur during the first 25% of the amortization length of the bonds, a “somewhat upfront savings structure” if 90% of the annual principal and interest savings occur during the first 50% of the amortization length of the bonds, and a “non-upfront savings structure” if 90% of the annual principal and interest savings occur over a period greater than the first 50% of the amortization length of the bonds. For example, if a refinancing bond was outstanding for 20 years and the annual savings were structured such that 90% of the savings occurred in the first four years, this bond would be classified as having a “substantial upfront savings structure” (i.e., 90% of the savings would have to occur during the first 5 years for this bond to be classified as having a “substantial upfront savings structure”; $25\% \text{ of the amortization length} = 25\% * 20 = 5 \text{ years}$). Refinancing bonds with a “substantial upfront savings structure” will be coded 0, bonds with a “somewhat upfront savings structure” will be coded 1, and bonds with a “non-upfront savings structure” will be coded 2. Since this type of analysis has never been performed to date, my operationalization of the dependent variable is novel to the municipal finance literature. However, I believe it is justified based on basic mathematical/financial principles that would, for example, support the 90% savings amount in the first 25% of the bond life classification as a “substantial upfront savings structure” since most of the savings is taken in the first quarter life of the bonds as the

refinancing is structured.

The data necessary for determining bond savings structure can be found in the bond issue's Official Statement or through Bloomberg, a computer portal that contains information on all publicly sold municipal bonds. The Official Statement is a document prepared for a new municipal bond issue by or for the issuer of the debt. This document describes the issue, financial details about the issuer and other relevant facts and is the municipal bond market's equivalent to the stock prospectus used in the equity markets. Included in this document is usually a comparison of the refinanced and refinancing principal and interest schedules (or detail on the refinanced and refinancing bonds so that such a comparison can be computed) which will allow for a relatively easy ranking of the refinancing savings structure of each bond issue. Official statements are readily accessible through MuniIRIS, a municipal market data clearinghouse available to most universities or Bloomberg. Bloomberg also provides data on the refinanced bonds in a refinancing. The sample of bond issues (approximate $n = 150$) used in this study will come from the entire universe of state government refinancing bond issues sold between 1998 through 2008, a period that covers two recessions and two periods of economic expansion thus allowing for some variability in the fiscal environments of these bond issues. The universe of bond issues from which the sample will be drawn will come from SDC, a data clearinghouse for all bonds sold in the municipal bond market. The sample will exclude issuers who do not have any statutory ability to structure their refunding bonds since these borrowers are legally restricted from making this financial policy decision.

Explanatory variables: I hypothesize that several variables could impact the decision on whether to structure bonds on an upfront savings basis or not. These explanatory variables include current fiscal conditions, existence of a debt policy, issuer credit rating, size of issuer,

size of issue, type of bond sale method, and use of a financial advisor. I hypothesize that current fiscal conditions will impact the refinancing savings structure decision in that an issuer will be more incentivized to resort to an upfront savings structure the greater its current budget deficit. The existence of a debt policy is expected to be associated with a lower likelihood of using an upfront savings structure as issuers who craft and rely on a formal debt policy in guiding their financial decisions are less likely to make imprudent debt management decisions. The relationship between credit rating and refinancing savings structure is one in which lower rated borrowers are more likely to structure savings on an upfront basis as these government entities probably have fewer alternative revenue enhancements available to them. The size of issuer (i.e., the population of the state) serves as a proxy for the level of debt management sophistication with larger and, thus, presumably more sophisticated issuers more likely to utilize higher-level debt management techniques such as an upfront refinancing bonds savings structure. Bond issue size relates to the refinancing structure decision whereby large issues are less likely to utilize an upfront savings structure, as these issues are more prominent and more likely to come under scrutiny. Issuers who use financial advisors receive independent financial advice and are less likely to engage in short-sighted debt management practices and, thus, are less likely to employ an upfront refinancing savings structure. The explanatory variable, bond method of sale, needs a little explanation. In general, states can sell their bonds using two methods, competitive or negotiated. A competitive bond sale involves several investment banks bidding against each other for purchase of the bonds with the highest bid for the bonds winning the sale. States can also sell their bonds through negotiation where they choose an investment bank in advance of the sale whereby the bank helps structure the bonds, pre-markets the bonds to investors, and then ultimately sells the bonds to investors. It is expected that negotiated sales will more likely be

associated with an upfront refinancing savings structure as negotiating issuers have access to innovative refinancing structuring ideas from the investment bank that it hires to help structure and sell the bond issue. Table 2 below summarizes the explanatory variables in this part of the study.

TABLE 2 - Explanatory Variables – Upfront Savings Structure Decision (Dependent variable coding: 0 substantial upfront savings structure, 1 somewhat upfront savings structure, 2 non upfront savings structure)			
<i>Explanatory Variable</i>	<i>Expected Sign</i>	<i>Anticipated Rationale</i>	<i>Source</i>
Current fiscal conditions (BUDGDEF)	-	Higher budget deficits offer greater incentive to engage in imprudent debt management practices	National Conference of State Legislatures
Existence of a debt policy (DEBTPOL; 0 no, 1 yes)	+	Issuers who rely on debt polices less likely to engage in imprudent debt management practices	Official Statement/Issuer Website/Issuer contact
Credit rating (CRATE)	-	Lower credit rated issuers have fewer revenue enhancement options than higher credit rated borrowers	Official Statement
Issuer Size (POP)	-	Larger issuers are more sophisticated users of debt and may engage in more sophisticated structuring approaches	U.S. Census Bureau
Issue size (SIZE)	+	The larger the issue size, the more prominent the issue, the less likely issuers will engage in financially reckless decisions in fear of	Official Statement

		exposure	
Use of financial advisor (FINADV; 0 no, 1 yes)	+	Issuers who use financial advisors receive independent financial advice and are less likely to engage in short-sighted debt management practices	Official Statement
Bond Sale method (NEGSALE; 0 negotiated, 1 competitive)	+	Issuers of negotiated sales have access to the financial guidance of investment banks who can provide a greater degree of bond structuring guidance	Official Statement

Statistical model: Because the dependent variable in this study is ordinal in nature, in the parlance of econometrics, it is classified as a limited dependent variable since there is essentially a restriction put upon the value of such variable. For most limited dependent variables, it is not appropriate to utilize a linear regression model such as OLS since the relationship between the dependent and independent variables are usually nonlinear in nature. That is, in the case of limited dependent variables, it does not seem logical the probability that the dependent variable equals a certain value would increase linearly with the independent variables, thus making the marginal effect of the independent variables constant throughout. Using such a linear probability model for limited dependent variables can produce significant bias in the estimates. Hence, a nonlinear model such as a probit or logit model is more appropriate for limited dependent variables including the dependent variable in this part of the study. More specifically, an ordered logit or probit model should be utilized since the dependent variable is ordinal in nature.

A traditional ordered probit model to estimate the effects on the decision to structure refinancing savings on an upfront basis or not might look as follows:

$$\text{Prob}(\text{REFSAVSTRUC}) = B_0 + B_1\text{BUDDEF} + B_2\text{DEBTPOL} + B_3\text{CRATE} + B_4\text{POP} + B_5\text{SIZE} + B_6\text{FINADV} + B_7\text{NEGSALE} + e$$

where the dependent variable is REFSAVSTRUC, the level of upfront refinanced savings structure utilized, BUDDEF is the current operating budget deficit as a percentage of the operating budget, DEBTPOL is the existence of a debt policy or not, CRATE is the bond credit rating, POP is the population of the issuer in 000s, SIZE is the par amount of the bond issue in 000s, FINADV is the use of a financial advisor or not, and NEGSALE is whether the bonds were sold on a negotiated basis or not, and e is the error term.

However, this model is potentially plagued by selection bias related to the bond method of sale explanatory variable. In this study, selection bias refers to sample selection bias as manifested in the fact that some states are statutorily restricted to only competitive bond sales. Mixing these issues with bonds that can be sold competitively or by negotiation by issuer choice may introduce bias into the results since the distribution of respondents over categories of this independent variable is not random but has taken place in a selective manner. States that are forced to sell their bonds by competition may differ in many measured and unmeasured characteristics from states that can choose to sell their bonds either by competition or negotiation. If these characteristics are related to the dependent variable REFSAVSTRUC, the coefficients on the dummy explanatory variable NEGSALE may include these effects, and thus, be biased. Econometrically speaking, the problem lies in the fact that the unobservable decision for selecting a method of sale may be based on some of the same variables that impact the dependent variable REFSAVSTRUC. Thus, the error term in this model may be correlated with

the explanatory variables resulting in biased estimates if you do not take selection bias into account.

There are several selectivity models to choose from to address this type of sample selection bias. However, since the treatment, in this case the explanatory variable NEGSALE, is related to both the observables and unobservables, there are only three treatment modeling options: Heckman two-step, instrumental variables, and method of double difference. The use of instrumental variables is usually quite challenging since it is hard to come up with good instrumental variables. The method of double difference entails that you need pre and post treatment data, which is not present in this database. Thus, I will utilize the Heckman two-step in attempting to control for selection bias associated with the variable NEGSALE. The first step of the Heckman two-step utilizes a probit model to model the selection process hypothesized to occur (in this case, the bond method of sale variable NEGSALE).

$$\text{Step 1: } \text{Prob}(\text{NEGSALE}) = B_0 + B_1\text{BUDDEF} + B_2\text{DEBTPOL} + B_3\text{CRATE} + B_4\text{POP} + B_5\text{SIZE} + B_6\text{FINADV} + e$$

The residuals from the first step are used to construct Lambda also known as the Inverse Mills Ratio, which reflects the effects of all unmeasured characteristics related to the bond method of sale decision. The second step consists of running an ordered probit model on the dependent variable of interest, REFSAVSTRUC, using all the originally hypothesized independent variables (BUDDEF, DEBTPOL, CRATE, POP, SIZE, FINADV, NEGSALE) and replacing the error term with Lambda.

$$\text{Step 2: } \text{Prob}(\text{REFSAVSTRUC}) = B_0 + B_1\text{BUDDEF} + B_2\text{DEBTPOL} + B_3\text{CRATE} + B_4\text{POP} + B_5\text{SIZE} + B_6\text{FINADV} + B_7\text{NEGSALE} + B_8\text{Lambda} + e$$

The estimate size and level of significance on the Lambda variable will determine whether there

is selection bias in the model and controlling for such bias by including Lambda in the second step will ensure that the estimates on the other variables will no longer be biased.

I believe that the measurements of this part of the research design mostly meet any objections related to external validity, internal validity, and reliability. External validity is mainly achieved by the fact that I am using a relatively large sample (n=150) of the entire universe of state refinancing bonds sold between 1998 and 2008. Thus, generalizability of the findings is not problematic since I am looking at a rather large sample of the whole universe of bonds. Internal validity related to selection is addressed in this model through the use of the Heckman two-step method. However, internal validity may still be problematic since the model that I have hypothesized to describe the relationship between the explanatory variables and the dependent variable refinancing savings structure, to my knowledge, has never been formulated before. Thus, there is a possibility that other scholars might hypothesize a different model for this public financial management decision adding and/or subtracting variables from my hypothesized model, which would question the causal relationships drawn from my model. Reliability is achieved by the utilization of a probit model, which has been tested extensively in the public finance literature as it relates to the bond sale method choice. That is, I would anticipate that another researcher would achieve the same results as mine using the same data since it is likely that he/she would use the same statistical method.

With respect to the dependent variable, refinancing savings structure, I expect that descriptive statistics will show that a preponderance of the refinancing bond issues utilize a “non-upfront savings structure.” Assuming this outcome, one would conclude that there is little or no evidence for the existence of a principal-agent problem in the public sector debt issuance process at least as it relates to refinancing bond decisions. On the other hand, descriptive

statistics may show that a preponderance of the refinancing bond issues utilize a “substantial upfront savings structure.” Under this outcome, one could posit that there is evidence for the existence of a principal-agent problem in the debt management function. The descriptive analysis results could become murkier for interpretive purposes should the findings show that a preponderance of the bonds utilized a “somewhat upfront savings structure.” One could interpret such a result as implying that there exists a somewhat muted principal-agent problem.

Based on the hypothesized relationships of the various explanatory variables to the dependent variable, I anticipate that the existence of a formal debt policy, higher bond credit ratings, larger bond sizes, use of a financial advisor, and competitive bond sales will be more associated with a non-upfront refinancing savings structure. I expect that greater budget deficits, the lack of a debt policy, larger states, and negotiated bond sales will be more associated with the use of a substantial upfront refinancing savings structure. In addition, I expect that I will find selection bias present in the statistical model related to the bond method of sale choice for the reasons stated in previous section of this paper. Based on these hypothesized relationships, one could conclude that a principal-agent problem in the management of state debt related to refinancing bonds would be exacerbated by poor state budgetary conditions and more sophisticated debt management tools on hand either through the assistance of investment banks in their work on negotiated bond sales or in-house state staff expertise. Conversely, the creation and use of a formal state debt policy, the use of competitive bond sales, the use of financial advisors, and better budgetary conditions could mitigate this principal-agent problem.

V. Empirical Results and Findings

Descriptive statistics (see Table 3 below) shows that almost 50% of the bond issues (i.e.,

69) utilized an upfront savings structure while only 24% of the bond issues (i.e., 36) employed a non-upfront savings structure. Moreover, 76% of the bond issues utilized at least a somewhat upfront savings structure. As such, these descriptive statistics show that a relatively pervasive principal-agent problem exists as it relates to the management of refinancing bonds as over three quarters of the bond issues were structured with some degree of an upfront savings structure.

The ordered probit model was estimated using 150 observations. The results are shown in Table 3 below⁵.

TABLE 3 – Preliminary Results of the Ordered Probit Analysis				
(Dependent variable REFSAVSTRUC coding: 0 substantial upfront savings structure, 1 somewhat upfront savings structure, 2 non upfront savings structure)				
<i>Variable</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>z</i>	<i>Significance</i>
BUDDEF	-0.2279	.10501	-2.17	0.030
DEBTPOL	0.31277	.65214	0.48	0.632
CRATE	-0.39988	.18113	-2.21	0.027
POP	0.00532	.06025	0.09	0.930
SIZE	0.01902	.01432	1.33	0.184
FINADV	1.34101	.64014	2.05	0.040
NEGSALE	1.63981	.75800	2.16	0.031
n	150	substantial upfront savings structure = 69 bond issues		
Chi-square	28.75	somewhat upfront saving structure = 45 bond issues		
Significance	0.0002	non-upfront savings structure = 36 bond issues		
Pseudo-R2	0.4721			

The model provides a good fit between and the data and the dependent variable, refinancing savings structure decision. The chi-squared test of goodness of fit is statistically significant. The pseudo R² is .4721, which means that approximately 47% of the variation in the dependent variable can be explained by this model⁶.

The signs of the control variables are as expected with the exception of issuer size, which

⁵ A selectivity model was not run and a marginal impact analysis was not performed as of yet. The next iteration of this paper will utilize such model and perform such analysis.

⁶ The number of correct predictions that the model produces is another measure of goodness of fit. The next iteration of this paper will incorporate such analysis.

is not statistically significant. In general, there was statistical support that current fiscal conditions, creditworthiness, bond sale method, and use of a financial advisor have nonzero effects on the refinancing savings structure decision. More specifically, higher current operating budget deficits, negotiated bond sales, lower credit ratings, and bond sales that do not utilize a financial advisor are associated with a higher likelihood to structure refinancing bond savings on an upfront basis. Conversely, lower current operating budget deficits, competitive bond sales, higher credit ratings, and the use of an independent financial advisor were associated with a lower likelihood to structure refinancing bond savings on an upfront basis. The explanatory variable existence of a debt policy is not significant, which is somewhat surprising given the importance of debt policies in the prudent management of debt as articulated in the rhetoric of policy groups and financial advisors. State population and issue size were not statistically significant.

VI. Discussion

The preliminary results of the empirical analysis offer some interesting implications. First, the pervasive use of an upfront refinancing savings structures provides evidence that a principal-agent problem persists in the debt management function of state governments throughout the country. This finding substantiates prior research that addressed this issue both directly and tangentially (Simonsen and Hill 1998; Robbins 1998, 2003). On the surface, this finding would provide some support for the continued and/or greater use of debt restrictions in the management of state debt. However, policymakers should be cautious interpreting this general finding since not all states utilized such a refinancing savings structure. As such, the use of debt restrictions in states where this abuse did not exist may lead states to incur unnecessary

costs in the management of their debt programs.

Second, the finding that negotiated bond sales are associated with a higher likelihood of utilizing an upfront refinancing savings structure provides fodder for critics of the undue and negative influence of underwriters in the management of state debt. Since investment banks provide much of the structuring advice in negotiated transactions, it would seem that this finding would substantiate concerns of their negative impact. However, the findings related to the use of a financial advisor (i.e., FAs are associated with a lower likelihood of using an upfront savings structure) show that this influence can be mitigated by the hiring of an independent financial advisor. That is, financial advisors can serve as a counter to the structuring advice of the investment banker in the hopes that the FAs advice will result in the use of more prudent bond structures. This finding supports previous research supporting the efficacy and public policy judgment of financial advisors (Vijayakumar and Daniels, 2006; Robbins and Simonsen, 2003)

Third, in contrast to current popular and practitioner rhetoric, the existence of debt policies do not seem to hamper the exercise of imprudent debt management techniques as it relates to state bond refinancings. Prudent debt policy principles and conventional wisdom claim that debt policies are an important ingredient in the proper long-term management of state debt. This line of thinking claims defines a debt policy as a comprehensive statement that clearly articulates the role of debt finance in advancing a state or local government's policy goals as it relates to its capital improvement plan (Johnson and Rubin, 1998). The Government Finance Officers Association (GFOA), the leading professional association of state and local government finance officers in the United States, strongly recommends the all state and local governments adopt comprehensive written debt management policies (GFOA, 2003). However, the results of this analysis seemed to show that the use of a debt policy did not have a statistically significant impact in restraining the use of imprudent debt refinancing techniques. While in contrast to conventional wisdom, this finding does substantiate some prior academic

research. That is, previous descriptive research showed that state and local government debt policies are not nearly universally adopted, usually very technical in nature, and often exclude broad policy issues (Hackbart and Leigland 1990, 37; Simonsen, Robbins and Kittredge 2001, 97). Given this descriptive research, it is not surprising this analysis' findings as it relates to the efficacy of debt policies in the refinancing structuring decisions of state governments. One weakness in this finding is that the model does not differentiate between low quality and high quality debt policies (i.e. debt policies that are more thorough, prescriptive and binding). That is, if the data included a variable for debt policy quality, one could have conceivably found that higher quality debt policies were associated with a lower likelihood of using an upfront savings structure. Thus, one policy suggestion is that states create more thorough and binding debt policies with debt managers required to provide written documentation for any deviation from the policy.

Finally, the finding that greater operating budget deficits are associated with a higher likelihood of utilizing an upfront refinancing savings structure clearly show that principal-agent problems in the management of state debt are exacerbated by deteriorating fiscal conditions. While this may not be surprising on the surface and may seem intuitive to the reader, this result provides evidence that principal-agent problems are not static but are dynamic and that debt managers may make different decisions depending on changing fiscal and economic conditions. Since this variable is relatively exogenous and thus states generally do not have any direct influence on the size and extent of fiscal conditions, policymakers should use this finding to justify ever more vigilance in monitoring the behavior of state financial managers in challenging budgetary times. Because an upfront savings structure only worsens existing structural budget deficits, it is critical that state debt managers especially avoid the use of this type of debt refinancing technique in times of fiscal stress as such techniques only serve to compound the short and long term budgetary problems of the state. Policymakers and the public need to

recognize this debt management temptation and monitor the decisions of their debt managers and their elected officials especially closely in these types of fiscal conditions.

VII. Bibliography

- Arrow, Kenneth. 1985. "The economics of agency." In J. Pratt and R. Zeckhauser, eds. Principals and Agents: The structure of business. Harvard University Press, Boston, MA. pp 37-51.
- Bayoumi, Tamim, Morris Goldstein and Geoffrey Woglom. 1995. "Do Credit Markets Discipline Sovereign Borrowers: Evidence from the States." *Journal of Money, Credit, and Banking* 27, no.4: 1046-1059.
- Bendor, Jonathan. 1988. "Review Article: Formal Models of Bureaucracy." *British Journal of Political Science* 18, no. 3: 353-395.
- Berry, Frances Stokes, and William D. Berry. 1992. "Tax Innovation in the States: Capitalizing on Political Opportunity." *American Journal of Political Science* 36:715-742.
- Bhagat, Sanjai and Peter A. Frost. 1986. "Issuing Cost to Existing Shareholders in Negotiated and Competitive Offerings of Public Utility Equity Issues." *Journal of Financial Economics* 15.
- Buchanan, Alexander B. 2005. "Dealing with Municipal Swap Risks." *Municipal Finance Journal* (Fall 2005).
- Commission on Government Forecasting and Accountability, "2005 Bonded Indebtedness Report of the State of Illinois," [report on-line]; available from <http://www.ilga.gov/commission/cgfa2006/home.aspx>: accessed 22 August 2006.
- Commission on Government Forecasting and Accountability, "2006 Bonded Indebtedness Report of the State of Illinois," [report on-line]; available from <http://www.ilga.gov/commission/cgfa2006/home.aspx>: accessed 17 July 2007.
- Denison, Dwight V., Merl Hackbart and Michael Moody. 2005. "Evolving Role of Debt Limit Policies." Working paper presented to National Conference of the Association for Budgeting and Financial Management. November 11, 2005.
- Donaldson, Lex. 1990. "The Ethereal Hand: Organizational Economics and Management Theory." *The Academy of Management Review* 15, no. 3: 369-381.
- Eisenhardt, K.M. 1985. "Control: Organizational and Economic Approaches." *Management Science* vol. 31: 134-149.
- Fama, Eugene. 1980. "Agency problems and the theory of the firm." *Journal of Political Economy* 88: 288-307.
- Finke, Doug. 2006. "Blagojevich back on campaign trail." *The State Journal-Register* (February 20).
- Government Finance Officers Association, *Selecting and Managing the Method of Sale of State and Local Government Bonds (1994)*, [report on-line]; available from <http://www.gfoa.org/services/rp/debt.shtml>: accessed 22 August 2006.
- Government Finance Officers Association, *Debt Management Policy (2003)*, [report on-line]; available from <http://www.gfoa.org/services/rp/debt.shtml>: accessed 22 August 2006.

- Government Finance Officers Association, *Analyzing an Advance Refunding (1995)*, [report on-line]; available from: <http://www.gfoa.org/services/rp/debt.shtml>: accessed 23 April 2007.
- Hackbart, Merl M., and James Leigland. 1990. "State Debt Management Policy: A National Survey." *Public Budgeting and Finance*. March.
- Hildreth, W. Bartley. 1993. "State and Local Governments as Borrowers: Strategic Choices and the Capital Market" *Public Administration Review* vol. 53 no. 1
- Hildreth, W. Bartley and C. Kurt Zorn. 2005. "The Evolution of the State and Local Government Municipal Debt Market Over the Past Quarter Century" *Public Budgeting and Finance* 25: 4
- Jensen, Michael C. and William H. Meckling. 1976. "Theory of the firm: Managerial behavior, agency costs and ownership structure." *Journal of Financial Economics*, vol. 3: 303-360.
- Johnson, Craig. and Marilyn Marks Rubin. 1998. "The Municipal Bond Market: Structure and Changes." In *Handbook of Public Finance*, ed. Fred Thompson and Mark T. Green, 1st ed. Boca Raton, FL.: CRC Press.
- Johnson, Craig L. and Kenneth A. Kriz. 2005. "Fiscal Institutions, Credit Ratings, and Borrowing Costs." *Public Budgeting and Finance*. Spring.
- Kalotay, Andrew and William May. 1998. "The Timing of Advance Refunding of Tax Exempt Municipal Bonds" *Municipal Finance Journal*
- Kalotay, Andrew, Yang, Deane, and Frank Fabozzi. 2007. "Refunding Efficiency: A Generalized Approach" *Applied Financial Economics Letters* 3.
- Knott, Jack H. 1993. "Comparing Public and Private Management: Cooperative Effort and Principal-Agent Relationships." *Journal of Public Administration Research and Theory* 3, no. 1: 93-119.
- Kriz, Kenneth A. 2003. "Comparative costs of negotiated versus competitive bond sales: new evidence from state general obligation bonds." *The Quarterly Review of Economics and Finance*. 43: 191-211.
- Leonard, Paul. Summer 1994. "Negotiated Versus Competitive Bond Sales: A Review of the Literature." *Municipal Finance Journal* 15, no. 2: 12-36.
- Leonard, Paul A. Spring 1996. "An Empirical Analysis of Competitive Bid and Negotiated Offerings of Municipal Bonds." *Municipal Finance Journal* 17, no. 1: 37-67.
- Leonard, Paul A. Winter 1999. "Competitive Bidding for Municipal Bonds: New Tests of the Underwriter Search Hypothesis." *Municipal Finance Journal* 19, no. 4: 18-37.
- Levinthal, Daniel. 1988. "A survey of agency models of organisations." *Journal of Economic Behaviour and Organization* 9; 153-185.
- Luby, Martin J. 2009. "Reforming State Debt Management Practices: The Case of Illinois 2004" *Municipal Finance Journal* Spring
- Miller, Gerald J. 1993. "Debt Management Networks." *Public Administration Review* 53:1:50-58.
- Musgrave, Richard. A. 1959. *The Theory of Public Finance*. New York, NY: McGraw Hill Book Company.
- Nilakant, V. and Hayagreeva Rao. 1994. "Agency Theory and Uncertainty in Organizations: An Evaluation." *Organization Studies* 15, no. 5: 649-672.
- Office of Legislative Services New Jersey State Legislature, April 2003. *Analysis of New Jersey Fiscal Year 2003-2004 Budget: Tax and Revenue Outlook*. [Online]. www.legis.state.nj.us Accessed April 30, 2003.
- Peng, Jun. and Peter Brucato, Jr. 2003. "Another Look at the Effect of Method of Sale on the Interest Costs in the Municipal Bond Market – A Certification Model." *Public Budgeting and*

Finance. Spring.

- Peterson J. and T. McLoughlin. 1991. "Debt Policies and Procedures." In *Local Government Finance: Concepts and Practices*, Eds. J. Petersen and D Strachotta, 1st ed. Chicago, IL: Government Finance Officers Association.
- Pfeffer, Jeffrey. 1997. *New Directions for Organization Theory: Problems and Prospects*, London, England: Oxford University Press.
- Poterba, James. M. and Kim Rueben. 1999. "State Fiscal Institutions and the U.S. Municipal Bond Market." In *Fiscal Institutions and Fiscal Performance*. eds. James M. Poterba and Jurgen von Hagen, 1st ed. Chicago, IL: The University of Chicago Press.
- Ress, R. 1985. "The theory of principal and agent." *Bulletin of Economic Research*, vol. 37: no. 1.
- Robbins, Mark and Casey Dungan. 2001. "Debt Diligence: How States manage the Borrowing Function." *Public Budgeting and Finance* Summer
- Robbins, Mark D. 2002. "Testing the Effects of Sale Method Restrictions in Municipal Bond Issuance: The Case of New Jersey." *Public Budgeting and Finance*. Summer.
- Robbins, Mark. B., Bill Simonsen and Bernard Jump, Jr. 2000. "Maturity Structure and Borrowing Costs: The Implications of Level Debt Service." *Municipal Finance Journal*. Fall.
- Robbins, Mark. and William Simonsen. 2003. "Financial Advisor Independence and the Choice of Municipal Bond Sale Type," *Municipal Finance Journal* 24: 37.
- Roden, Peyton Foster and John Bassler. August 1996. "Effect of Underwriter Prestige on the Interest Cost of Municipal Bond Offerings. *The Financial Review* 31, no. 3: 641-666.
- Ross, Stephen A. 1973. "The economic theory of agency: The principal's problem." *American Economic Review* vol. 62: 134-139.
- Shields, Yvette. 2004. "Illinois Inks Budget, Adopts Series of Major Debt Reforms." *Bond Buyer* (July 28).
- Shields, Yvette. 2008. "Illinois Budget Imbroglia." *Bond Buyer* (June 3).
- Simon, Herbert A. 1985. "Human Nature in Politics: The Dialogue of Psychology with Political Science." *The American Political Science Review* 79(2): 293-304.
- Simonsen, William and Mark B. Robbins. January 1996. "Does It Make Any Difference Anymore? Competitive versus Negotiated Municipal Bond Issuance." *Public Administration Review* 56, no. 1: 57-64.
- Simonsen, William and William Kittredge. 1997. "Competitive versus Negotiated Municipal Bond Sales: Why Issuers Choose One Method over the Other." *Municipal Finance Journal* vol. 19 no. 2 1-29.
- Simonsen, William, Mark B. Robbins and Bill Kittredge. 2001. "Do Debt Policies Make a Difference in Finance Officers' Perceptions of the Importance of Debt Management Factors?" *Public Budgeting and Finance*, Spring.
- Simonsen, William, Mark B. Robbins and Lee Helgerson. November/December 2001. "The Influence of Jurisdiction Size and Sale Type on Municipal Bond Interest Rates: An Empirical Analysis." *Public Administration Review* 61, no. 6: 709-717.
- Simonsen, Bill and Larry Hill. 1998, "Municipal Bond Issuance: Is There Evidence of a Principal-Agent Problem?" *Public Budgeting and Finance* Winter: 71-100.
- Sims, J.P. Jr. and D.A. Gioia. 1986, *The Thinking Organization*, San Francisco, CA: Jossey-Bass.
- Smith, Kerry. L. 2004. "GOP rejoices over debt control act." *Illinois Business Journal* (October 11).

- Standard and Poor's. May 2008. "History of U.S. State Ratings." Standard and Poor's Ratings Direct. available from: www.standardandpoors.com/ratingsdirect: accessed 29 July 2008
- State of Illinois Public Act 093-0839 [legislation on-line]; available from: <http://www.ilga.gov/>: accessed 22 August 2006.
- Vijayakumar, Jayaraman. 1995. "An Empirical Analysis of the Factors Influencing Call Decisions of Local Government Bonds." *Journal of Accounting and Public Policy* 14 203-231.
- Vijayakumar and Daniels, 2006, "The Role and Impact of Financial Advisors in the Market for Municipal Bonds", *Journal of Financial Services Research* 30: 43.
- Williamson, Oliver. 1985. The Economic Institutions of Capitalism. New York, NY: The Free Press.
- Williamson, Oliver. 1988. "Corporate Finance and Corporate Governance" *Journal Finance* vol. XLIII, no. 3: 567-600.
- Worsham, Jeff, Marc Allen Eisner and Evan J. Ringquist. 1997. "Assessing the Assumptions: A Critical Analysis of Agency Theory." *Administration and Society* 28, no. 4: 419-440