Do Local Governments Present Required Disclosures for Defined Benefit Pension Plans?

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ABSTRACT

Recent well-publicized scandals have highlighted the importance of defined benefit pension plans for state and local governments. Using pension related data for 233 local governments in Michigan and Pennsylvania, we examine the purpose of required disclosures for defined benefit pensions plans under GASBS No. 27, whether local governments follow these requirements, and the factors that explain a government's propensity to include these items. Our descriptive statistics suggest that a significant number of governments with sole-employer defined benefit pension plans are not complying with these requirements. Consistent with Lindsay's theory of government enterprise, our results suggest that monitoring from the GFOA Certificate of Achievement Program, debt, state oversight, and appointed officials impact a government's propensity to follow the disclosure requirements of GASBS No. 27. Our findings also suggest that disclosure quality is lower for disclosures in required supplementary information compared to disclosures in the financial statement notes. Given our results, we suggest that the GASB require local governments to report the fair value of the pension liability on a government's balance sheet.

Do Local Governments Present Required Disclosures for Defined Benefit Pension Plans?

Financial statement disclosures serve a prominent role in the financial reporting of for-profit, non-profit and governmental entities. Although a significant amount is known about voluntary disclosures, Schipper (2007) notes there is no comprehensive theory and limited empirical evidence on required disclosures in financial reports.[1] In this paper, we examine the reporting of required disclosures for defined benefit (DB) pension plans under Governmental Accounting Standards Board Statement (GASBS) No. 27.[2] Specifically, this paper examines the purpose of these disclosures, whether local governments follow these requirements, and the factors that explain a government's propensity to present these items. DB pension plans are an excellent area to examine required disclosures given that GASBS No. 27 includes forty-three possible disclosures.[3]

DB pension plans are a significant financial obligation of governments and have garnered increased attention because of several scandals. The Congressional Research Service reports that government workers are twice as likely to receive a pension compared to employees in the private sector and the shortfall for under-funded benefits of DB pension plans is approximately $700 billion for government workers compared to about $450 billion for the private sector, with the private sector workforce seven times larger than the government workforce (Cauchon 2007, USA Today Magazine 2007). In what is called "Enron by the Sea", the City of San Diego, the seventh largest city in the United States, has been dealing with a financial statement fraud primarily caused by a deficit in its DB pension plan (Streisand 2005). A key component of this pension fraud is the absence of required disclosures under GASBS No. 27. In August 2006, the Audit Committee of the City of San Diego, chaired by Arthur Levitt, produced a 481 page-report noting

[1] Recent voluntary disclosure research includes Chen et al. (2008), Ajinkya et al. (2005), and Brown et al. (2004).
[2] Table 1 provides a description of abbreviations in this paper.
[3] Appendix A provides a description of the required disclosures for DB pension plans under GASBS No. 27.

the following "the City's various disclosure documents omitted or presented in an inaccurate or misleading fashion material information concerning the City's pension funding arrangement and its potential impact on the City's financial health" (Levitt et al. 2006). The Audit Committee further suggested that these lack of disclosures hindered financial statement users from understanding the true extent of the under-funding of the City's DB pension plan.

DB pension plans have played a significant role in the history of the Governmental Accounting Standards Board (GASB). In fact, disagreements about how pensions should be reported and the possible application of Financial Accounting Standards Board Statement (FASBS) No. 87 to state and local governments were major factors that led to the formation of the GASB in 1984 (Patton and Freeman 2005, 2009). Soon after its formation, the GASB issued GASBS No. 4, which effectively made the then new Financial Accounting Standards Board (FASB) pension reporting standard (that is, FASBS No. 87) inapplicable to state and local governments while the GASB developed its own pension standards. In 1986, the GASB issued GASBS No. 5, which required governments to make certain disclosures regarding their pension obligations including a description of a government's pension plans, a discussion of actuarial valuation and assumptions, and a multi-year presentation of information regarding the actuarial determination of the pension benefit obligation and how well the government had funded it (Patton and Freeman, 2009). GASBS No. 5 was a significant departure from FASBS No. 87 given that GASBS No. 5 did not require governments to report a liability for their pension obligation in their financial statements while FASBS No. 87 required for-profits and non-profits to record a liability when the accumulated benefits obligation exceeded the fair value of the plans assets.

In 1994, the GASB issued GASBS No. 27, a significant departure from GASBS No. 5, given that state and local governments were now required to recognize a pension related liability for the first time in the governmental financial statements. GASBS No. 27 conceptually requires a government employer to annually record an accrual-based pension expense that is derived from

the annual required contribution (ARC) in its government-wide financial statements. The ARC is an actuarially determined amount that typically is comprised of two components: normal cost and an amount that amortizes the unfunded actuarial accrued liability (UAAL). Normal cost is the amount that is allocated based on an actuarial cost method to the current period for benefits earned by current employees for services rendered during that period. The UAAL generally represents the unfunded portion of benefits previously earned by employees (past service costs) and is the amount by which a pension plan's actuarial accrued liability exceeds the actuarial value of plan assets.

The actuarially determined UAAL, however, is not reported on the face of the government-wide statement of net assets, which is similar to a balance sheet in the private sector. Instead, a government reports an accounting liability—a net pension obligation (NPO)—if it has not annually contributed an amount at least equal to the ARC into a qualifying pension plan since the government was first required to implement GASBS No. 27. That is, the NPO generally can be thought of as the cumulative difference between an employer's annual pension cost and an employer's contributions to the pension plan.[4] Under GASBS No. 27, the UAAL is disclosed in the required supplementary information (RSI).

Since the issuance of GASBS No. 27, pension actuaries and financial economists have argued that pension liabilities should be reported on a government's balance sheet at fair value **(**JAASATF 2006, Gold and Latter 2008).[5] That is, they believe that the NPO, which is now reported as a liability in a government's financial statements, is not appropriate because it is based on a government's funding rather than the fair value of the liability. A better approach would be to include the UAAL as a liability in a government's financial statements because it reflects the pension benefits earned by employees in previous years.

[4] Instead of an NPO, a government employer may have an accounting asset—net pension asset—reported in its financial statements if its cumulative contributions to its pension plan exceed its annual pension cost.
[5] In fact, the Public Interest Committee of the American Academy of Actuaries recently stated that "it is in the public interest for retirement plans to disclose consistent measures of the economic value of plan assets and liabilities in order to provide the benefits promised by plan sponsors" (Biggs 2009).

Reporting the UAAL as a liability is also consistent with the governmental financial reporting objective of interperiod equity. Interperiod equity occurs when current-year revenues are sufficient to cover the cost of current year services (GASB 2009). Given that the UAAL consists of pension benefits earned by employees in previous years, conceptually these costs should be recognized as a liability in the government-wide financial statements. By failing to report the UAAL as a liability in their financial statements, governments are shifting the reporting of current or past period costs to future periods, which understates previous period expenses and overstates future period expenses, and thereby, making an assessment of interperiod equity impossible. Concerns about not reporting the UAAL on the face of a government's financial statements have intensified since the implementation of GASBS No. 34, which requires accrual-basis reporting in the government-wide financial statements. In response to this, the GASB is currently seeking comments about whether the UAAL should be recognized on the face of the government-wide financial statements (GASB 2009).

Schipper (2007) notes that required disclosures can be examined from both a standard setting and research perspective. Given the absence of a generally accepted theory of required disclosures or a standard setter's conceptual framework for disclosures, Schipper (2007) suggests that the purpose of required disclosures are content-specific and researchers should examine these purposes by examining the standard itself and the circumstances that led to its creation. Using this perspective, we first examine the purpose of required disclosures for DB pension plans under GASBS No. 27 and the relative importance of these items. The second purpose of this paper is to examine whether local governments follow the required disclosures under GASBS No. 27 and the factors that explain a government's propensity to present these items. Using a theoretical framework that draws upon both agency theory and a theory of government enterprise, we examine the incentives and disincentives for presenting the required disclosures under GASBS No. 27. Drawing from regulatory economics, Lindsay's theory of government enterprise asserts that, given that individuals are wealth maximizers, government officials are influenced to divert

resources from the production of attributes which will not be monitored to those which will (Lindsay 1976, Viscusi et al. 2005). This theory and agency theory suggest that if pension disclosures are observed/monitored by other parties, government managers will ensure that these disclosures are complete. We examine factors that cause pension disclosures to be observed/monitored.

Using a sample of 233 Michigan and Pennsylvania local governments in 2005, we find that a significant number of governments with sole-employer DB pension plans are not complying with GASBS No. 27's disclosure requirements. Thirty-four percent of the governments do not disclose the unfunded actuarial accrued liability (UAAL) for the most recent valuation and two preceding valuations in the required supplemental information (RSI) as required by GASBS No. 27. This lack of disclosure is especially alarming given that FASBS No. 158, *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans – an amendment to FASB Statements No. 87, 88, 106, and 132(R)*, requires the FASB equivalent of the UAAL to be reflected on the face of the balance sheet for for-profit and non-profit entities. Consistent with Lindsay's theory of government enterprise, our results suggest that monitoring from the GFOA Certificate of Achievement Program, debt, state oversight, and appointed officials impact a government's propensity to follow the disclosure requirements of GASBS No. 27. Our results further suggest that differences exist in the independent variables associated with disclosure quality in RSI and the financial statement notes. These results should not be surprising given that GASB standards do not view financial statement disclosures and disclosures in RSI as substitutes for each other.

Prior research has primarily examined the actuarial methods and assumptions and funding levels for DB pension plans. In the government sector, Eaton and Nofsinger (2004) examine the effects of political pressure and financial distress on the actuarial methods and assumptions of DB pension plans for state and local governments. In the for-profit sector, Asthana (1999) examines the effects of financial and pension profiles on a firm's actuarial

choices and funding strategies and Franzoni and Marin (2006) examine the market valuation of companies with DB pension plans. In this study, we make several contributions to the accounting literature. First, to our knowledge, no prior study has examined whether local governments include the required disclosures under GASBS No. 27 in their financial statements. Given our results, we suggest that the GASB require local governments to report the fair value of the pension liability on a government's balance sheet. We also suggest that states should consider whether their oversight of the financial reporting by local governments is adequate especially given the significant impact of Michigan's oversight on our results. Finally, given that many governments do not provide the basic disclosures in the financial statement notes, we suggest that the GASB consider issuing educational material or technical guidance to emphasize and clarify the information that should be disclosed. Second, our regression results provide evidence regarding the factors that explain a government's propensity to present required disclosures. While Gore (2004) provides evidence regarding the overall presentation of the basic financial statements and general footnote items, we provide detailed evidence regarding pension related items.[6] Our findings address the call of Schipper (2007) for additional research of required disclosures by examining pension related items that are detailed and highly technical.

The next two sections of the paper address the purpose of required disclosure under GASBS No. 27 and our theory and hypothesis development. This is followed by our research design and tests of hypotheses. The results follow, and the paper concludes with a summary and discussion.

PURPOSE OF REQUIRED DISCLOSURES UNDER GASBS NO. 27

Over the years and regardless of the current standard, the GASB has always required a significant number of disclosures for DB pension plans especially in the context of its other note and RSI disclosure requirements (GASB 2007). Although not explicitly stated in GASBS No. 27,

[6] Gore (2004) includes one of the forty-three pension related disclosures in one of her two indexes. Her sample period is 1995, which is prior to the effective date of GASBS No. 27 (for periods beginning after June 15, 1997).

there are at least three primary reasons for the emphasis on disclosing information about DB pension plans. First, pension-related liabilities can be significant claims on a government's financial resources. Biggs (2009) notes that public employee pension plans are underfunded nationally by approximately $310 billion. Second, unlike many other liabilities which can be readily valued based on contractual arrangements, the determination of the ARC, pension expense, NPO, and UAAL for DB pension plans requires numerous assumptions which cannot be known with any degree of certainty until a future period. These numerous assumptions, such as the expected investment rate of return and expected inflation rate, comprise a significant number of these required note disclosures. Third, given these numerous assumptions, there are a number of different ways to measure a DB pension plan liability. The DB pension plan disclosures in the RSI provide an alternative measurement to that recorded on the face of the financial statement.

Although the GASB does not explicitly establish rankings of the importance of required note disclosures, the most important and useful DB pension plan disclosures are those that help answer the following question: What is the value of my government's liability for its DB pension plan? That is, what will my government owe? Of the forty-three possible required disclosures noted in Table 2, the ten actuarial methods and assumptions disclosures (see panel B of Table 2) and the UAAL and related disclosures in RSI (see panels C and D of Table 2) are the primary disclosures that answer this question. The remaining disclosures are informational or contextual in nature and do not provide direct evidence regarding a government's liability for its DB pension plan.[7]

The importance of the ten actuarial methods and assumptions and the UAAL and related disclosures in RSI are consistently highlighted in the public press. In a recent article on *Bloomberg.com*, Evans (2009) questions whether governments have overestimated their actuarial

[7] The nine disclosures required under GASBS No. 27, paragraph 20 (see Panel A of Table 2) provide general information about the pension plan and the disclosures in Panel B of Table 2 (not including the actuarial methods and assumptions) elaborate on the actual amounts reported on the face of the financial statements.

methods and assumptions. He notes that the largest public pension in the United States, the California Public Employees' Retirement System, has an expected investment rate of return of 7.75%, but in reality the average rate of return over the last ten years has been 3.32%. In an article in the *Wall Street Journal*, Biggs (2009) argues that a government's pension liability should be reported at fair value similar to the UAAL and related disclosures in RSI. Biggs (2009) questions whether taxpayers' needs are met under GASBS No. 27; which does not report the fair value of the pension liability on the face of the financial statements.

THEORY AND HYPOTHESES DEVELOPMENT

Although a significant number of theories of voluntary disclosure exist, Shipper (2007) notes there is no comprehensive theory and limited empirical evidence regarding required disclosures.[8] Given the separation of ownership between the citizens (i.e., principals) that indirectly own the government and government officials (i.e., agents) that run its operations, we adopt a theoretical framework that draws upon both agency theory and a theory of government enterprise to examine the incentives and disincentives for presenting the required disclosures under GASBS No. 27.

From a general perspective, agency theory suggests that a firm is a nexus of contracts among individuals involving principals and agents, where the principals entrust their welfare to the agent because they do not have the management expertise to run a firm's operations (Coase 1937, Jensen and Meckling 1976, Fama and Jensen 1983). Considering that the principals and agents are self-interested parties who display opportunistic behavior, it is difficult to avoid the emergent conflicts between owners and management that invariably arise (Holmstrom and Tirole 1989, Mukherji and Wright 1999). Given that principals do not have the expertise of the agents and asymmetry of information exists between the parties, these inequities lead to a situation of

[8] Although Shipper (2007) addresses disclosures in the for-profit sector, her findings also hold for the government sector. Prior research in the government sector has primarily examined the relationship between voluntary/general disclosures and various attributes of the government and the political and social environment.

moral hazard where the agents' interests might diverge from the interests of the principals. To minimize undesirable agent behavior, principals/agents incur agency costs such as monitoring costs to reduce the opportunity for moral hazard.

Drawing from regulatory economics, Lindsay's theory of government enterprise specifically examines the output behavior of governments in response to this moral hazard (Viscusi et al. 2005). Lindsay notes that in common with proprietary enterprises, the risk of moral hazard is negatively related to the principals' (for example citizens or higher levels of government) lack of knowledge of the attributes of the goods or services produced by the government enterprise. Lindsay argues that the principals of government enterprises have less knowledge than the principals of proprietary enterprises of the attributes of products or services produced by their respective agents because of the lack of taxpayer participation and the absence of a convenient measure of managerial productivity in the governmental setting. Given these differences, governmental and proprietary managers confronted with the identical demand function will act differently as illustrated in Figure 1 (Lindsay 1976). Assuming that attribute X represents revenues and attribute Y represents expenses of a certain product in a proprietary enterprise that are sold in perfect and freely functioning markets and $p^1(z)$ and $p^2(z)$ are isoprice curves linking combinations of attributes which will command a common price in the market, the proprietary manager will produce z^1 because it maximizes the price obtained along t(z). In contrast, Lindsay suggests that government enterprises do not operate in perfect and freely functioning markets. Thus, assuming that attributes X and Y will not be both monitored in the governmental setting, a government manager will produce z^3 where attribute Y is perfectly invisible and will produce z^2 where attribute Y is only partly visible. Overall, Lindsay's theory of government enterprise suggests that government officials are especially influenced to divert resources from the production of attributes which are not monitored to those which will, given the overall lack of oversight in the governmental sector. Thus, agency theory and Lindsay's theory of government enterprise suggest that if pension disclosures are observed/monitored by other

parties, government managers will ensure these disclosures are complete. However, if pension disclosures are invisible after some threshold level, then government managers will prepare less than complete disclosures under GASBS No. 27 as illustrated by Z^2 in Figure 1. In the next section, we examine the factors that cause pension disclosures to be observed/monitored.

There have been a number of studies that have examined monitoring mechanisms in the government sector (Ingram 1984, Robbins and Austin 1986, Evans and Patton 1987a, Banker et al. 1989, Giroux 1989, Zardkooh and Giroux 1990, Cheng 1992, Giroux and Shields 1993, Gore 2004). Consistent with Lindsay's theory that government officials are influenced to divert resources from the production of attributes which are not monitored to those that are, it is important that we identify the monitoring mechanisms that have a significant impact on a government officials' propensity to prepare complete pension related disclosures under GASBS No. 27. These mechanisms include GFOA's Certificate of Achievement program, debt, external auditor, state oversight, and appointed officials.

GFOA's Certificate of Achievement program

The GFOA's Certificate of Achievement program is a common measure of reporting and disclosure quality that is widely recognized and respected in the government sector (Evans and Patton 1983, Giroux and McLelland 2003). Given that the program is voluntary and the general purpose preparer checklist for certification includes over four pages of pension related disclosure items, government officials that choose to participate in the program understand that their pension disclosures will definitely be subject to a detailed review by an expert reviewer.[9] In fact, the GFOA's Certificate of Achievement program is the most direct monitoring of pension related disclosures given the certainty of review of these disclosures by an expert reviewer. This leads to the first hypothesis:

H_1: Local governments that participate in the GFOA's Certificate of Achievement

[9] The GFOA's general purpose preparer checklist is available at http://www.gfoa.org/downloads/GENERALPURPOSECHECKLIST.pdf

program are more likely to follow the disclosure requirements for DB pension plans under GASBS No. 27.

Debt

Although the GASB identifies voters, regulators, and bond markets as primary users of government financial statements, many consider the bond market as the primary user of government financial statements (Jones et al. 1985, Copley et al. 1997, and Gore 2004). In fact, Gore (2004) finds that government managers have bond-market-induced incentives to provide general disclosures in the financial statements. Given that more debt leads to the need for more monitoring, government managers might present a complete set of financial statements to reduce these costs (Jensen and Meckling 1976). This leads to the second hypothesis:

H_2: Local governments with greater debt are more likely to follow the disclosure requirements for DB pension plans under GASBS No. 27.

External Auditor

Prior research has shown a positive relationship between audit firm size and audit quality in the governmental sector (Copley 1991, O'Keefe and Westort 1992, Brown and Raghunandan 1995, Elder 1997, Lowensohn et al. 2007). These studies suggest that larger audit firms are more likely to be associated with higher quality financial statements because of reputation concerns and the expertise of these audit firms. As noted in Appendix A and Table 2, DB pension related disclosure requirements are complex and significant; prior research (Lowensohn et al. 2007) suggests that larger audit firms are more likely to have the expertise to ensure these disclosures are correct. This leads to the third hypothesis:

H_3: Local governments with larger audit firms are more likely to follow the disclosure requirements for DB pension plans under GASBS No. 27.

State oversight

Given the close fiscal relationships between states and their local governments, states often provide significant oversight of the financial reporting of local governments. Ingram and

DeJong (1987) and Gore (2004) examine the impact of state oversight on the quality of reporting by local governments. Gore (2004) finds that oversight by states of local government financial reporting does induce additional disclosures for certain local governments. Thus, consistent with Lindsay's theory of government enterprise, local government officials in a state that provide significant oversight of financial reporting will be more likely to follow the pension related disclosure requirements. This leads to the fourth hypothesis:

H_4: Local governments with greater oversight from the state are more likely to follow the disclosure requirements for DB pension plans under GASBS No. 27.

Appointed officials

Zimmerman (1997) argues that appointed officials (city managers for municipalities and county administrators/county managers for counties) are more likely to provide additional oversight than elected officials because appointed officials are more insulated from the concerns of the political landscape and are better equipped to make decisions in the best interest of the government rather than the best interest of a reelection campaign.[10] Conversely, appointed officials, as participants in the DB pension plan, have incentives to pressure elected officials to increase retirement benefits for their own personal gain and cover up these benefits by failing to disclose these items. For example, the Audit Committee of the City of San Diego documented several instances where appointed officials failed to disclose increases in benefits provided to them and other situations where government officials garnered special pension benefits because of managerial opportunism. This leads to the fifth hypothesis in the null form:

H_5: There is no association between appointed officials and the likelihood of following the disclosure requirements for DB pension plans under GASBS No. 27.

[10] Giroux and Deis (1993) and Giroux and McLelland (2003) note that cities with a city manager have demonstrated superior financial performance and higher levels of accounting disclosure compared to cities with administration by elected officials.

RESEARCH DESIGN AND TESTS OF HYPOTHESES

Data

To examine whether local governments follow the disclosure requirements under GASBS No. 27, we needed states with local governments that have: 1) sole-employer DB pension plans, 2) audited financial statements in conformity with GAAP as promulgated by the GASB (hereinafter, GASB-GAAP), and 3) financial statements available in either soft or hard copy. Many states, such as California, New York, and Texas, have a significant number of local governments but these governments do not have sole-employer DB pension plans because they generally participate in a state sponsored DB pension plan.[11] By participating in a state sponsored plan, these governments are not suitable for this study because they do not independently compile their pension related disclosures; rather these disclosures and the actuarial methods and assumptions are provided to them by the state.

We consulted the U. S. Census – Federal, State, and Local Governments 2005 State and Local Government Employee-Retirement Systems, a database that reports the number of sole-employer defined benefit pension plans by state. Based on the Census data, the top ten states with the greatest number of local governments with at least one sole-employer DB pension plan are (with the number of local governments in parenthesis): Pennsylvania (565), Illinois (223), Minnesota (132), Michigan (108), Florida (86), Massachusetts (82), Indiana (47), Colorado (40), California (39), and Connecticut (35). We decided to pick local governments from two of these states for the following reasons: 1) Gore's (2004) concern that including too many states in a sample will introduce uncontrolled factors, 2) the difficulty in obtaining audited financial statements from local governments, and 3) the very time consuming process of collecting data from hardcopy financial statements – especially the forty-three DB pension related disclosures.

[11] Many Texas local governments participate in the Texas Municipal Retirement System, New York local governments participate in the New York State and Local Retirement System (NYSLRS), and California local governments participate in its Public Employees' Retirement System.

We included Pennsylvania in our sample for the following reasons: 1) it has the greatest number of local governments with at least one sole-employer DB pension plan, 2) Patrick (2007) notes that all phase I local governments (revenues greater than $100 million) and 85% percent of phase II local governments (revenues $10 million but less than $100 million) in Pennsylvania produce GASB-GAAP audited financial statements, and 3) the Pennsylvania Right to Know Law Act requires that local governments provide copies of government records, including audited financial statements, to all parties. Given the relative similarity of the remaining top ten states as far as the number of local governments with at least one sole-employer DB pension plan, we examined whether the local governments in these states publish GASB-GAAP audited financial statements and whether these statements were available. Of the remaining nine states, Michigan is only state that places their local governments' financial statements on-line for public access. Given the ease of obtaining Michigan local government statements, the fact that greater than 95% of the local governments in Michigan produce GASB-GAAP audited financial statements, and Gore's (2004) finding that Michigan and Pennsylvania local governments are closely matched in many ways, our sample includes local governments with at least one sole-employer DB pension plan in Michigan and Pennsylvania. We obtained the 2005 audited financial statements for the Michigan local governments in PDF format from the Michigan Department of Treasury's website and the 2005 audited financial statements for the Pennsylvania local governments either by consulting the local government's website or directly contacting the local government and paying a reproduction fee.

Table 3 provides details regarding the sample composition for local governments in Michigan and Pennsylvania.[12] As noted in Table 3, there are a total of 673 local governments in Michigan and Pennsylvania with at least one sole-employer DB pension plan. In a study of Pennsylvania local governments, Patrick (2007) notes that only 19% of Pennsylvania Phase III

[12] Our sample does not include Michigan and Pennsylvania school districts because both states require local school districts to participate in a state sponsored DB pension plan.

governments (i.e., governments with less than $10 million in total revenue) produce GASB-GAAP financial statements. Given that this study examines GASB-GAAP pension reporting disclosures, the small percentage of Pennsylvania Phase III local governments that produce GASB-GAAP financial statements, and the significant time required to obtain financial statements for Pennsylvania governments, we exclude from our sample the 421 Pennsylvania local governments with less than $10 million in total revenue. Our sample is further reduced by one Pennsylvania local government that has not completed its audited financial statements since 2003 and 18 Pennsylvania local governments with $10 million or more in total revenue that did not prepare GASB-GAAP financial statements.[13] Thus, our final sample includes all local governments in Michigan and all local governments in Pennsylvania with $10 million or more in total revenue that have at least one sole-employer DB benefit pension plan and produce GASB-GAAP audited financial statements. For our final sample of 233 local governments, 73 are counties (22 Michigan; 51 Pennsylvania) and the remaining 160 are municipalities (86 Michigan; 74 Pennsylvania). Consistent with Botosan (1997) and Gore (2004), our sample only includes one year because disclosure levels remain fairly constant from year to year.

Test of hypotheses

We use the following regression model to test our hypotheses regarding the factors that explain a local government's propensity to present the required disclosures for DB pension plans under GASBS No. 27:

$$INDEX = \alpha + \beta_1 GFOA + \beta_2 DEBT + \beta_3 \text{AUDIT} + \beta_4 STATE + \beta_5 APPOINT + \beta_6 POP + \beta_7 ABILITY + \beta_8 FUNDED + \beta_9 \text{INCOME}$$

Where:[14]

INDEX = percentage of disclosures included in the financial statements that are applicable to

[13] Our sample includes nine Michigan local governments with less than $10 million in total revenue. The inclusion of these governments does not substantially change any of the regression results or the significance of the individual variables.

[14] Amounts from the statement of net assets or statement of activities are for the total primary government (i.e., includes governmental activities and business-type activities).

		the local government's pension plans;
GFOA	=	1 if local government received GFOA Certificate of Achievement, else 0;
DEBT	=	natural log of ratio of non-current liabilities to total population;
AUDIT	=	1 if audited by Big Four accounting firm, else 0;
STATE	=	1 if local government is in Michigan, else 0;
APPOINT	=	1 if government managed by professional manager, else 0;
POP	=	natural log of total population;
ABILITY	=	ratio of unrestricted net assets to total expenses (ability to continue service ratio);
FUNDED	=	1 if pension plan has a UAAL (that is, the pension plan's actuarial accrued liability exceeds the actuarial value of plan assets), else 0; and
INCOME	=	natural log of average income per capita.

Disclosure index

The dependent variable is an index based on a government's compliance with the forty-three possible required disclosures under GASBS No. 27 presented in Table 2. The total number of required disclosures per government is dependent on the number of sole-employer DB pension plans and the number of the forty-three disclosures required for each pension plan. For example, sole-employer DB pension plans that use the aggregate actuarial cost method need not include the sixteen required disclosures in the RSI section (Panels C and D of Table 2) because that method does not result in the calculation of this information. Thus, a government with two DB pension plans using the aggregate actuarial cost method for both plans will have fifty-four required disclosures.[15] Assuming this government presents fifty of these fifty-four disclosures, the disclosure index for this local government is 92.6%. Overall, the index represents the percentage of disclosures included in the financial statements that are applicable to the local government's pension plans.

Given the importance of the ten actuarial methods and assumptions disclosures and the UAAL and related disclosures in RSI as noted in the purpose of required disclosures section of our paper, our analysis will also determine whether our results are robust for these definitions of

[15] Forty-three required disclosures less sixteen required disclosures in RSI times 2 DB pension plans.

the disclosure index.[16] We will run our regression model using the following three possible definitions of our disclosure index: 1) all forty-three possible disclosures, 2) ten actuarial methods and assumptions disclosures only, and 3) the UAAL and related disclosures in RSI only.

Independent variables

Hypothesis one examines the impact of the GFOA's Certificate of Achievement program on the likelihood of following the disclosure requirements under GASBS No. 27. We include the dummy variable GFOA (1 if local government received GFOA Certificate of Achievement) and expect the coefficient on this variable will be positive for hypothesis one. Hypothesis two examines the impact of debt on the likelihood of following the disclosure requirements under GASBS No. 27. Prior research (Ingram and DeJong 1987 and Chaney et al. 2002, and Gore 2004) has used total debt scaled by total population as a measure of debt. We include the variable DEBT (ratio of non-current liabilities reported in the statement of net assets for the primary government to total population) and expect the coefficient on this variable will be positive. Hypothesis three examines the impact of the external auditor on the likelihood of following the disclosure requirements under GASBS No. 27. Prior research in the governmental sector (Brown and Raghunandan 1995, Craswell et al. 1995, Jensen and Payne 2005) has found that Big Four auditors provide higher quality audits because of their size and expertise. Thus, we include a Big Four dummy variable AUDIT in our model and anticipate that the variable will have a positive sign.

Hypothesis four examines the impact of state oversight on the likelihood of following the disclosure requirements under GASBS No. 27. Overall, Michigan provides significant oversight of their local governments' financial reporting; which is not present in Pennsylvania. First, the Michigan Uniform System of Accounting Act and the Michigan Uniform Budgeting and Accounting Act require counties and municipalities, respectively, to annually submit audited

[16] As previously noted, these disclosures are important because they help users determine the value of a government's liability for its DB pension plan.

financial statements to the Michigan Department of Treasury. If the local government does not comply with these laws, the state can withhold funding and the Michigan Department of Revenue can audit the books of the local government if no audit has been performed. In Pennsylvania, there is no such requirement; Pennsylvania local governments are not required to submit audited financial statements to state; they solely provide summary revenue and expenditure data on either the cash, modified cash, or accrual basis to the Pennsylvania Department of Community and Economic Development. Second, the Michigan Department of Treasury performs a general desk review of the audited financial statements.[17] There is no such desk review in Pennsylvania. Third, although Michigan and Pennsylvania did not require GASB-GAAP financial statements for all local governments in 2005, Michigan has always required its local governments to follow the GASB pension note disclosure and RSI requirements. Pennsylvania had no such requirement. Fourth, the audited financial statements for Michigan local governments are available on the Michigan Department of Treasury's website suggesting that these statements are more available/monitored. Finally, there are 565 local governments in Pennsylvania and 108 in Michigan. The sheer number of local governments in Pennsylvania produces a climate of non-monitoring suggesting that government managers feel their financial statements will not be monitored. We include the dummy variable STATE (1 if local government is in Michigan) and expect the coefficient of this variable will be positive for hypothesis four.

Hypothesis five examines the impact of appointed officials on the likelihood of following the disclosure requirements under GASBS No. 27. We consult the 2005 *Municipal Year* Book published by the International City/County Management Association to determine whether municipalities have a Council-City Manager and counties have a Council-Administrator or Council-Manager. We include the dummy variable APPOINT (1 if the government is managed by a professional manager) and make no prediction of the sign for the fifth hypothesis because of conflicting theories regarding managerial factors.

[17] This desk review includes one question related to the adequate funding of the defined benefit plan.

Control variables

We include three key factors as control variables which have been found significant in prior research; government size, fiscal constraints, and socioeconomic factors of citizens. Prior research (Watts and Zimmerman 1986, Zimmerman 1977, Leftwich et al. 1981) notes that agency costs increase with firm size, and that issuing complete financial statements with all the required disclosures would lessen this problem. Singhvi and Desai (1971) and Dye (1985a, 1985b) further note that larger organizations are more likely to present a complete set of financial statements because the financial statements of larger firms are more widely distributed, the cost of accumulating information is greater for smaller firms, and managers of smaller firms generally believe more strongly that full disclosure may endanger their competitive position. Prior studies (Zimmerman 1977, Robbins and Austin, 1986, Ingram and DeJong, 1987, Copley, 1991, Giroux and McLelland 2003, and Gore 2004) in the government sector provide evidence that larger governments present higher levels of accounting disclosure. Consistent with prior research (Giroux and McLelland 2003 and Gore 2004), we include the natural log of total population as our size measure and anticipate the coefficient on this variable will be positive.

Prior research (Singhvi and Desai 1971, Malone et al. 1993) argues that fiscal constraints can impact the level of financial disclosures because firms in better financial condition are able to bear the costs of higher levels of disclosure and agents of firms with less fiscal constraints disclose more to enhance their personal compensation and stature. Conversely, when firms experience fiscal constraints, agents disclose less to cover up the reasons for declining financial health. Ingram (1984), Giroux and Deis (1993) and Giroux and McLelland (2003) find a significant relationship between fiscal constraints and level of voluntary disclosures in the government sector.[18] Kamnikar et al. (2006) suggests that the ability to continue services ratio is

[18] The City of San Diego's lack of disclosures of pension related information was often preceded by fiscal pressure. For example, in 1994, "the City was experiencing one of the worst economic cycles in its history and City officials started to discuss a proposal with the City Employers Retirement System Board that dealt with alternative funding methods" (Levitt et al. 2006). On February 17, 1994, "City Manager Jack

useful to determine a government's fiscal constraints and ability to offer on-going services to its citizens. This ratio measures the degree to which unrestricted net assets could support continuing government services.[19] We include the variable ABILITY (ratio of unrestricted net assets to total expenses) and expect the coefficient on this variable will be positive. In addition to the overall financial condition of the local government, the financial condition of the DB pension plan is also important. Governments with UAALs should be less likely to follow the disclosure requirement under GASBS No. 27. We include the dummy variable FUNDED (1 if the pension plan has an UAAL) and expect the coefficient on this variable will be negative.

Prior research (Ingram 1984, Robbins and Austin 1986, Banker et al 1989, Giroux 1989, Cheng 1992) has found that socioeconomic factors can influence policy decisions of governments. Consistent with Giroux and McLelland (2003), we include average income per capita from the U.S. Census Data, Census 2000 and anticipate that governments with higher income per capita are more likely to follow the disclosure requirements under GASBS No. 27 because citizens with higher income per capita are more likely to monitor their government officials. Therefore, we expect the coefficient of the INCOME variable to be positive.[20]

RESULTS

Descriptive statistics

Table 4 provides descriptive statistics for the forty-three possible disclosures in Table 2. For the nine general disclosures required by paragraph 20 of GASBS No. 27, a vast majority provide the information that is critical to gain a basic understanding of the plan; the name of the plan (99%), identification of the plan as a sole-employer plan (98%), the types of benefits

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McGrory wrote a letter to the Pension Board requesting that the Board not approve the June 30, 1993 valuation until the City had time to review the impact of increased costs to the General Fund as a result of the significant change in the actuarial methodology" (Levitt et al. 2006, page 35).

[19] In addition to the continuing services ratio, Kamnikar et al. (2006) also suggest including the quick ratio as an assessment of a government's financial condition. In our sample, the continuing services ratio and quick ratio are highly correlated (0.74). Either variable is significant in the model and does not substantially change any of the regression results, or the significance of the other individual variables.

[20] Gore (2004) also controls for differences between cities, townships, and counties. This variable is not included in our model because it is highly correlated with POP (0.60), DEBT (0.56), and APPOINT (0.50).

provided (97%), and the employers' funding policy (93%). Fewer governments provide information about the legal authority and administration of the plan. For example, 30% fail to disclose the entity that administers the plan. With the complexities of DB pension plans, disclosure of whether the local government or an external firm that specializes in DB pension plans administers the plan may affect a user's conclusions regarding these plans.

As noted in Table 4, only 78% include the necessary disclosures under GASBS No. 27, paragraph 21 in the financial statement notes. A major deficiency in employers' note disclosure is their failure to include three years of information about their annual pension cost (26% made no note disclosure) and the percentage of their annual pension cost that they contributed during the year (56% made no disclosure). These disclosures provide readers of financial statements with information about whether governments are systematically funding their pension plans. Governments' failure to disclose their change in the NPO from the prior year (49% made no disclosure) compounds the problem for readers attempting to understand a government's current funding of their pension plan.

Although many governments provide complete disclosure of their actuarial methods and assumptions, a significant minority do not. For example, 28% do not provide information about their inflation rate assumption and 16% provide incomplete information about how they amortize their UAAL. This is a problem for sophisticated users of financial statements, such as credit rating agencies, that may wish to understand whether a government is making assumptions that tend to reduce its ARC.

In addition to the disclosures required under paragraphs 20 and 21 of GASBS No. 27 that primarily provide additional information about amounts reported on the face of the financial statement, GASBS No. 27 requires additional actuarial information in RSI for a period of years. The types and extent of the disclosures depend on whether the sole-employer defined benefit pension plan is or is not included in the local government's fiduciary fund financial statements and whether the pension plan issues a stand-alone report. As noted in Table 4, the percentage of

compliance is significantly lower for RSI compared to the financial statement notes. Only 65% of the governments required to include the schedule of funding progress for the most recent valuation and two preceding valuations present this information in RSI. By not presenting the detailed information in RSI, employees and credit analysts of such governments are not able to determine how well the governments are funding their pension plans and how the UAAL has changed over the years. This is especially troubling given the recent volatility of the stock market.

Panel A of Table 5 presents the distribution of the financial disclosure index (INDEX) for all forty-three possible disclosures for the full sample and the Michigan and Pennsylvania sub samples. The average INDEX for the sample is 82%. The values range between 35% and 100% with 23 (10%) of the 233 governments in our sample reporting 100% compliance with the disclosure requirements under GASBS No. 27. There is a significant difference in compliance for all forty-three possible disclosures, at a p-value of < 0.01, for Michigan and Pennsylvania governments; suggesting that the collection and general desk review of financial statements by the Michigan Department of Treasury and the Michigan requirement that all local governments follow the GASB pension note disclosure and RSI requirements may contribute to Michigan's significant compliance with GASBS No. 27.

Panels B and C of Table 5 present the distribution of the financial disclosure index for sub samples of the forty-three possible disclosures under GASBS No. 27. The results for the actuarial methods and assumptions sub sample is fairly consistent with the overall index while the results for the UAAL and related disclosures in RSI subsample is not consistent with the overall index. The average index for the UAAL and related disclosures in RSI of 76% (Panel C of Table 5) is significantly lower than the average index for all forty-three related disclosures of 82% (Panel A of Table 5) and the ten actuarial methods and assumptions disclosures of 85% (Panel B of Table 5). Further, the UAAL and related disclosures in RSI is the only definition of the financial disclosure index where the difference between Michigan and Pennsylvania is not

significant at a p-value of < 0.10. The 26 governments required to present the UAAL and related disclosures that fail to include these disclosures is a primary driver of these results.

Prior research (Cotter and Zimmer 2003, Davis-Friday et al 2004, Ahmed et al. 2006, Frederickson et al. 2006) in the for-profit sector has found differences in the reliability of recognized versus disclosed items. Our results suggest that, within disclosed items, differences exist in the reliability of disclosures included in the notes to the financial statements and RSI. The cause of these differences could be the complexity of the pension disclosures in RSI (i.e., all governments with DB pension plans are required to present the disclosures in the notes while only certain governments are required to present the RSI) or the reduced audit requirements for RSI items (i.e., auditors are required to express an opinion on the fairness of the notes to the financial statements while they are only required to read the RSI to consider whether its presentation is materially consistent with the information appearing in the financial statements). Future research should examine the cause of these differences.

Table 6 provides descriptive statistics regarding the independent variables partitioned by state. As noted in Table 6, the standard deviation of the population and debt are high; justifying our use of the log transformed measure for both items. There are significant differences between Michigan and Pennsylvania for POP, ABILITY, GFOA, APPOINT, and FUNDED. The mean values for ABILITY for Michigan and Pennsylvania of 0.44 and 0.24, respectively, suggest that Michigan local governments are generally in better financial condition than their counterparts in Pennsylvania.[21] Of the local governments in our sample, 42% of the Michigan local governments obtained the GFOA Certificate of Achievement compared to 25% of the Pennsylvania local governments.

[21] These differences are further highlighted by the mean values for the quick ratio and fiscal constrains flow (ratio of interest expense to total revenue) for Michigan and Pennsylvania of 4.14 (0.02) and 3.25 (0.05), respectively. These differences are significant at p-value of 0.05 or less. The mean values for quick ratio and fiscal constraints flow are not presented in Table 6 because they are not included in the regression model.

Of the 188 governments that disclosed funding information, 84 (45%) governments reported an underfunded actuarial accrued liability (UAAL) in RSI. The mean (median) value for these 188 governments was a funding excess of $20.1 million and $453,000, respectively.[22] There was a significant range of values for these 188 governments with seven governments having a UAAL greater than $40 million and eleven governments with a funding excess of greater than $40 million.[23] The mean (median) population for the seven governments with a UAAL greater than $40 million and the eleven governments with a funding excess greater than $40 million is 513,371 (124,471) and 462,876 (124,939), respectively, which is significantly higher than the mean (median) population of 111,148 (43,027) for the entire sample. Of the 84 governments with a UAAL, the mean (median) ratio of the UAAL to total population is $196 ($99), respectively. Four governments have a UAAL to total population greater than $550 (Pontiac City, MI ($2,488), Kalamazoo City, MI ($1,662), Johnstown, PA ($822), and Ironwood City, MI ($574)). On August 26, 2009, the GASB held hearings regarding possible changes to GASBS No. 27 (Walsh 2009). During these hearings, the GASB heard testimony regarding the dire condition of governmental DB pension plans as well as governments with well-established funding policies. The results of this study provide evidence that both spectrums exist in Michigan and Pennsylvania local governments. It is important to recognize that our data is from 2005, which does not consider the recent significant declines in the financial markets.

Table 7 presents correlation matrices for the independent variables, only one of the correlations exceeds 0.40 (the correlation between POP and APPOINT) indicating that

[22] A funding excess occurs when the actuarial value of assets in a plan exceeds the actuarial accrued liability.

[23] The seven governments with a UAAL greater than $40 million consist of Pontiac City, MI ($165 million), Kalamazoo City, MI ($128 million), Montgomery County, PA ($124 million), Genesee County, MI ($54 million), Sterling Heights City, MI ($52 million), Wayne County, MI ($50 million) and Southfield City, MI ($42 million). The eleven governments with a funding excess of greater than $40 million consist of Philadelphia City, PA ($2,986 million), Pittsburgh City, PA ($470 million), Flint City, MI ($159 million), Detroit City, MI ($148 million), Allegheny County, PA ($125 million), Allentown City, PA ($71 million, Scranton City, PA ($66 million), Bay County, PA ($53 million), Erie County, PA ($44 million), Chester County, PA ($44 million), and York City, PA ($42 million).

multicollinearity is not likely to be a problem. This is confirmed by an examination of variation inflation factors, none of which exceeds 1.93.

Regression results

Table 8 provides the results from the regression models for the three definitions of the disclosure index (Model 1 = all forty-three possible disclosures, Model 2 = ten actuarial methods and assumptions disclosures, and Model 3 = UAAL and related disclosures in RSI). Models 2 and 3 of the disclosure index determine whether our results are robust for different definitions of the index. Models 1, 2, and 3 are all significant at a P-value < 0.01 with adjusted R^2's of 28 percent, 25 percent, and 27 percent, respectively. Lindsay's theory of government enterprise suggests that government officials are more likely to ensure that pension disclosures are complete if these disclosures are observed/monitored by other parties. In this study, we examine the following monitoring mechanisms: GFOA's Certificate of Achievement Program, debt, external auditor, state oversight, and appointed officials. Overall, the results indicate that the GFOA Certificate of Achievement Program (hypothesis one), debt (hypothesis two), state oversight (hypothesis four), and appointed officials (hypothesis five) impact a government's propensity to follow the disclosure requirements of GASBS No. 27. We do not find support for the impact of auditors (hypothesis three) on reporting quality.

Our results suggest that monitoring from the GFOA Certificate of Achievement Program impacts a government's propensity to include all forty-three possible pension related disclosures. These results are robust for the ten actuarial methods and assumptions disclosures (Model 2) but not for the UAAL and related disclosures in RSI (Model 3). The voluntary nature of the GFOA program and the understanding that these disclosures will be subject to a detailed review by an expert reviewer from the GFOA appear to significantly impact a government's propensity to include the pension-related disclosures under GASB No. 27.

Although the GASB identifies voters, regulators, and bond markets as primary users of governmental financial statements, many consider the bond market as the primary user of

governmental financial statements (Jones et al. 1985, Copley et al. 1997, Gore 2004). Our findings are consistent with prior research, given that debt is the only independent variable in our study that is significant in all three definitions of the disclosure index. While debt has a significant impact on reporting quality, the presence of a Big Four auditor is not significant in this study. A primary reason for this lack of significance may be that Big Four accounting firms audit only four percent of the governments in our study.

Increased state oversight in Michigan impacts a government's propensity to include all forty-three possible disclosures. The stronger Michigan laws, the oversight by the Michigan Department of Treasury, and the accessibility of Michigan local government financial statements on the Michigan Department of Treasury's website appear to contribute to the increased compliance of Michigan local governments with the disclosure requirements under GASBS No. 27. Similar to the GFOA's Certificate of Achievement program, these results are robust for the ten actuarial methods and assumptions disclosures but not for the UAAL and related disclosures in RSI. Once again, the complexity of the UAAL and related disclosures in RSI may be a key factor in the insignificance of the state monitoring in Model 3. While the GFOA Certificate of Achievement Program and state monitoring do not impact a government's propensity to include the UAAL and related disclosures in RSI, the expertise of appointed officials is significant in Model 3. These results suggest that external oversight may not impact compliance with the UAAL and related disclosures in RSI but the expertise of the government staff significantly impacts the reporting quality of the UAAL and related disclosures in RSI. Our descriptive statistics suggest that disclosure quality is lower for disclosures in RSI compared to disclosures in the financial statements notes and our regression analysis suggests that differences exist in the independent variables associated with disclosure quality in RSI and the financial statement notes. These results should not be surprising given that GASB standards do not view financial statement disclosures and presentation in RSI as substitutes for each other.

For the control variables, we find that funding status and per capita income impact a government's propensity to follow the disclosures requirements under GASBS No. 27. In recent testimony at a GASB hearing, Diann Shipione, a former trustee of the San Diego pension fund and the eventual whistle-blower of its pension scandal, noted that GASBS No. 27 should be revised "to make it easier to see when states and cities were falling behind on their pension contributions, which she hoped would prompt them to pump more money into the plans" (Walsh 2009). Although our results do not provide direct evidence that additional disclosures will result in better funded plans, our results confirm an association between adequate disclosures and level of funding. That is, pension plans with a UAAL are less likely to provide the required disclosures under GASBS No. 27. Future research should directly examine whether additional disclosures might encourage governments to contribute more to their pension plans.

Sensitivity analysis

To examine the influence of government size on our results, we performed the following two tests: 1) deleted outlying observations (those outside two standard deviations of the median) for each of the continuous variables and 2) truncated outlying observations to the one percent and 99 percent levels. In both cases, our results were qualitatively unchanged.

As previously noted, 188 of the 233 governments in our sample disclosed funding information in RSI. For the regression results in Table 8, the remaining 45 governments were coded "0" for the FUNDED variable (1 if pension plan has a UAAL, else 0) given that we had no information regarding their funding status. To examine influence of these 45 governments on our regression results, we ran all three regressions models using the 188 governments that disclosed funding information in RSI. In all three regressions, our results were qualitatively unchanged and each model had a modest increase in its R^2.

SUMMARY AND DISCUSSION

Recent pension-related scandals in San Diego, California, and the related fallout from this crisis, highlight the importance of DB pension plans for state and local governments. In this

paper, we examine the purpose of required disclosures for DB pension plans under GASBS No. 27, whether local governments follow these requirements, and the factors that explain a government's propensity to present these items. Using a sample of 233 local governments in Michigan and Pennsylvania, we find that a significant number of governments with sole-employer DB pension plans are not complying with GASBS No. 27's disclosure requirements. Lindsay's theory of government enterprise suggests that government officials are more likely to ensure that pension disclosures are complete if these disclosures are observed/monitored by other parties. Our regression results suggest that monitoring from the GFOA Certificate of Achievement Program, debt, state oversight, and appointed officials impact a government's propensity to follow the disclosure requirements of GASBS No. 27.

Although many governments in our sample provide a significant number of the required disclosures under GASBS No. 27 (the average index for all forty-three required disclosures for the sample is 82%), a significant minority do not provide key disclosures that may affect a user's conclusions regarding a government's DB pension plans. For example, 30% fail to disclose the entity that administers the plan, 56% fail to disclose the percentage of their annual pension costs that they contributed during the year, 28% fail to disclose information about their inflation rate assumption, and 16% provide incomplete information about how they amortize their UAAL. Given the importance of these disclosures, we suggest that the GASB consider issuing educational material or technical guidance to emphasize and clarify the information that should be disclosed.

Our results suggest that disclosure quality of the UAAL and related disclosures in RSI is significantly lower compared to disclosures in the financial statement notes and differences exist in the independent variables associated with disclosure quality in RSI and the financial statement notes. Given the lower quality of disclosures in RSI, pension actuaries and financial economists' belief that pension liabilities should be reported on a government's balance sheet at fair value, and the consistency with the principle of interperiod equity of reporting the UAAL as a liability,

we suggest that the GASB require local government to report the fair value of the pension liability on a government's balance sheet. Although Walsh (2009) notes that GASB board members are learning towards making narrow changes in existing rules, like shortening amortization schedules or reducing the number of actuarial methods that plans may use, we suggest that the GASB consider more aggressive changes given the significance of pension obligations and the significant losses in the financial markets.[24]

Finally, we suggest that states consider whether their oversight of the financial reporting by local governments is adequate. Given the significant impact of Michigan's oversight on our results and that local governments are not required to follow GASB standards, it appears that states are in a good position to provide this oversight given that they can withhold funding to local governments if they don't follow these standards.

This paper is subject to the following limitations. First, this study examines the reporting of disclosure requirements for DB pension plans for Michigan and Pennsylvania local governments. Investigation of whether our findings apply to other required disclosures in the government sector, to local governments in other states, and to state governments would add to the limited literature on required disclosures. Second, these results may not be generalized to the corporate sector. These issues could be addressed by future research in the corporate sector where there are a significant number of required disclosures. Finally, our sample is derived from 2005. Recent declining economic times and falling stock markets have led to more underfunding of pension plans and increased debt for local governments. Given our findings for these items, future research should further examine the impact of these confounding incentives on local government compliance with pension disclosures.

[24] Cho (2009) notes that state and local governments have recently lost about $1 trillion in the financial markets.

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APPENDIX A
REQUIRED DISCLOSURES FOR DEFINED BENEFIT PLANS UNDER GASBS NO. 27

Because of the nature of DB pension plans, GASBS No. 27 includes a significant number of required disclosures that provide information about alternative measurement methods for recognized items and information necessary to understand recognized and unrecognized items. These items are presented in either the notes to the financial statement or the RSI. In addition to the pension expense and net pension obligation (NPO) reported on the face of the financial statements, Paragraph 20 of GASBS No. 27 requires the disclosure of general information about the pension plan, including a description of the plan and the government's funding policy, and specific information about the amounts reported on the face of the financial statements.[25] Paragraph 21 of GASBS No. 27 requires disclosure of the dollar amount of a government's contribution toward its annual required contribution (ARC), the components of its annual pension cost, and the current period's increase or decrease in the NPO, if applicable. A government must also disclose its annual pension cost, the percentage of annual pension cost contributed, and its NPO at year-end (if applicable) for the last three years, including the current year. GASBS No. 27 also requires disclosure of the date of a plan's last actuarial valuation and identification of the actuarial methods and significant assumptions used to calculate the ARC. A list of nine disclosure requirements under paragraph 20 and the eighteen disclosure requirements under paragraph 21 are presented in Panels A and B of Table 2, respectively.

In contrast to the note disclosures that primarily provide additional information about amounts reported on the face of the financial statements, RSI primarily includes actuarial information for a period of years. Sole and agent government employers generally are required to prepare a schedule of funding progress for at least the current and two preceding actuarial valuations.[26] Paragraph 22 of GASBS No. 27 identifies the elements of the schedule of funding progress as:

> The actuarial valuation date, the actuarial value of plan assets, the actuarial accrued liability, the total…UAAL (or funding excess), the actuarial value of assets as a percentage of the actuarial accrued liability (funded ratio), the annual covered payrolls, and the ratio of the…UAAL (or funding excess) to annual covered payroll.

A sole or agent employer government, however, that uses the aggregate actuarial cost method is not required to provide the RSI disclosures because this method does not result in the calculation of the information (for example, the actuarial accrued liability or the UAAL). A list of required disclosures in RSI under paragraph 22 of GASBS No. 27 are presented in Panel C and D of Table 2.

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[25] There are significant differences between the accounting for DB pension plans for state and local governments and for-profit entities. Under GASBS No. 27, the net pension obligation is the cumulative difference between annual pension cost and the employer's contributions to the plan, including the pension liability or asset at transition. Under FAS No. 158, the pension liability for for-profit entities is the amount that would have to be paid today to effectively settle the entity's pension obligation (i.e., underfunded actuarial accrued liability).

[26] Government employers, however, that report a pension trust fund as part of their financial statements and for which the pension plan does not issue a separate stand-alone financial report must include a schedule of funding progress for the past six years and must also include a schedule of employer contributions for the past six years.

Figure 1
Lindsay's Theory of Government Enterprise

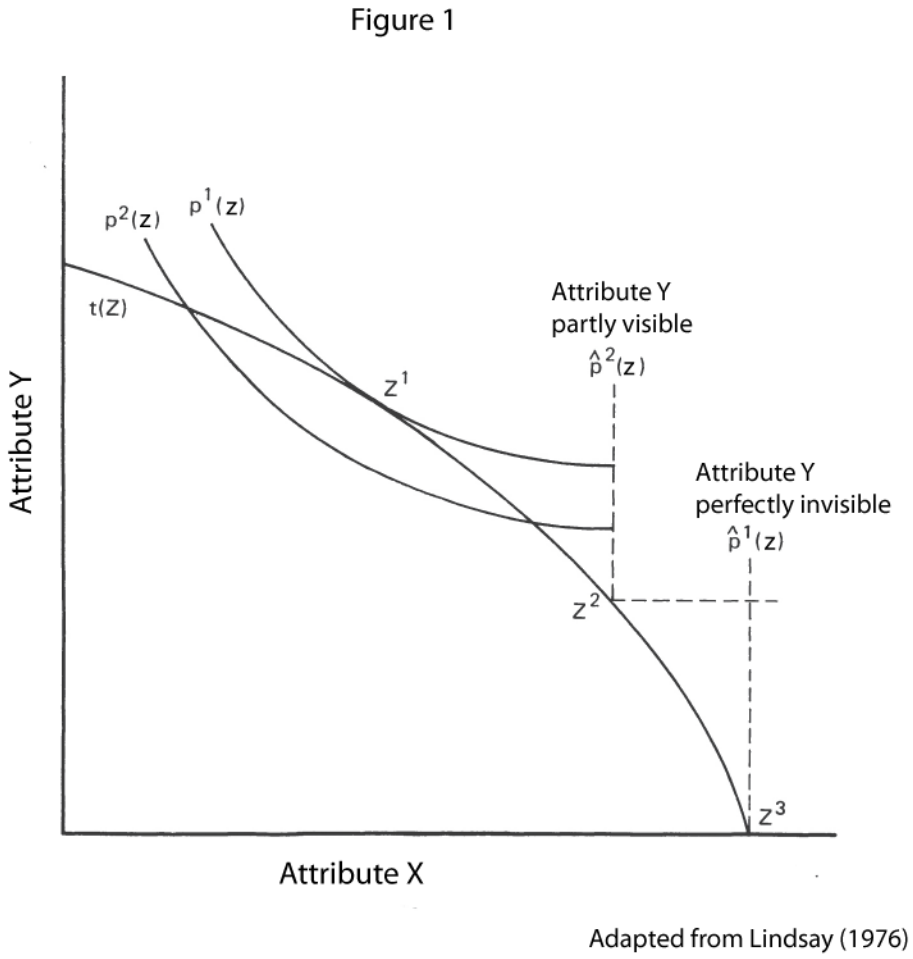

Table 1
Table of Abbreviations

ARC	=	Annual required contribution
DB pension plans	=	Defined benefit pension plans
FASB	=	Financial Accounting Standards Board
FASBS	=	Financial Accounting Standards Board Statement
GASB	=	Governmental Accounting Standards Board
GASB-GAAP	=	Audited financial statements in conformity with GAAP as promulgated by GASB
GASBS	=	Governmental Accounting Standards Board Statement
GFOA	=	Government Finance Officers Association
NPO	=	Net pension obligation
RSI	=	Required supplementary information
UAAL	=	Underfunded actuarial accrued liability

Table 2
Forty-Three Possible Disclosures in Notes to Financial Statements or RSI

Panel A:

Nine disclosure requirements under GASBS No. 27, paragraph 20:

Variable Name		Description of Required Item
NAME	=	Name of plan;
ADMINISTERS	=	Identification of entity that administers plan;
SOLE-EMPLOYER	=	Identification of plan as a sole-employer plan;
TYPES BENEFITS	=	Brief description of the types of benefits provided;
AUTHORITY TO ESTABLISH	=	The authority under which benefit provisions are established or may be amended;
STAND-ALONE FINANCIALS	=	Whether the pension plan issues a stand-alone financial report, and, if so, how to obtain the report;
AUTHORITY TO CONTRIBUTE	=	Authority under which obligations to contribute to the plan of the plan members, employer(s), and other contributing entities are established or may be amended;
CONTRIBUTION RATE	=	Required contribution rates for active plan members; and
FUNDING POLICY	=	Required contribution rates for the employer based on funding policy, in dollars or as a percentage of current-year covered payroll. If rate differs significantly from the ARC, disclose how rate is determined.

Panel B:

Eighteen disclosure requirements under GASBS No. 27, paragraph 21:

Variable Name		Description of Required Item
For current year:		
CONTRIBUTION	=	Dollar amount of contributions made;
ARC	=	Annual required contribution;
NPO INTEREST	=	Interest on net pension obligation;
NPO-CHANGE	=	Increase or decrease in net pension obligation;
NPO-YEAR END(1)	=	NPO at year-end;
For current and each of the two preceding years:		
PENSION COST	=	Annual pension cost;
PERCENTAGE	=	Percentage of annual pension cost contributed that year;
For each of the two preceding years:		
NPO-YEAR END(2)	=	NPO at year-end;
Actuarial methods and assumptions:		
ACTUARIAL DATE	=	Date of actuarial valuation;
ACTUARIAL COST	=	Actuarial cost method;
ACTURIAL VALUE	=	Method(s) used to determine the actuarial value of plan assets;
INFLATION	=	Inflation rate;
RETURN	=	Investment rate of return;
SALARY	=	Projected salary increases;
POSTRETIREMENT	=	Postretirement benefit increases;
METHOD	=	Amortization method;
PERIOD	=	Remaining amortization period; and
OPEN/CLOSED	=	Open or closed amortization period.

Table 2 (Cont.)
Forty-Three Possible Disclosures in Notes to Financial Statements or RSI

Panel C:

Seven disclosure requirements in RSI for local government employers that do not include a pension trust fund in their financial reports and employers that do include a pension trust fund in their financial reports but also issues a stand-alone report:

Variable Name		Description of Required Item
Schedule of funding progress (most recent valuation and two preceding valuations):		
VALUATION DATE	=	Actuarial valuation date;
PLAN ASSETS	=	Actuarial value of plan assets;
ACCRUED LIABILITY	=	Actuarial accrued liability;
UNDERFUNDED LIABILITY	=	Total UAAL (or funding excess);
FUNDED RATIO	=	Actuarial value of plan assets divided by actuarial accrued liability;
COVERED PAYROLL	=	Annual covered payroll; and
UNDERFUNDED RATIO	=	Ratio of UAAL (or funding excess) to annual covered payroll.

Panel D:

Nine disclosure requirements in RSI where the employer's financial report does include a pension trust fund for which the pension plan does not issue a stand-alone report

Variable Name		Description of Required Item
Schedule of funding progress (for each of the past six consecutive fiscal years for the plan):		
VALUATION DATE	=	Actuarial valuation date;
PLAN ASSETS	=	Actuarial value of plan assets;
ACCRUED LIABILITY	=	Actuarial accrued liability;
UNDERFUNDED LIABILITY	=	Total UAAL (or funding excess);
FUNDED RATIO	=	Actuarial value of plan assets divided by actuarial accrued liability;
COVERED PAYROLL	=	Annual covered payroll; and
UNDERFUNDED RATIO	=	Ratio of UAAL (or funding excess) to annual covered payroll.
Schedule of employer contributions (for each of the past six consecutive fiscal years for the plan):		
ARC-DOLLAR	=	Dollar amount of ARC applicable to that year; and
ARC-PERCENT	=	Percentage of ARC recognized in plan's statement of changes in plan net assets as contribution from employer.

Table 3
Sample of Local Governments

	Michigan	Pennsylvania	Total
Total number of local governments with at least one sole-employer DB pension plan from Census 2000	108	565	673
Less: Pennsylvania local governments with total revenues less than $10 million [a]	-	421	421
Adjusted total number of local governments	108	144	252
Less:			
Audit not completed for 2004 to present	-	1	1
Does not prepare GASB-GAAP statements	-	18	18
Total	108	125	233

[a] = Pennsylvania local governments with total revenues less than $10 million are excluded given that Patrick (2007) notes that only 19% of these governments produce GASB-GAAP financial statements.

Table 4
Components of Financial Disclosure Index (INDEX)

Components of Index	Percentage in Compliance[a] Full Sample (n = 233)	Michigan (n = 108)	Pennsylvania (n = 125)	Chi-squared (p-value)[b]
GASBS No. 27, paragraph 20:				
NAME	99%	100%	99%	1.25
ADMINISTERS	70%	82%	54%	4.76***
SOLE-EMPLOYER	98%	98%	98%	0.03
TYPES BENEFITS	97%	99%	95%	1.89
AUTHORITY TO ESTABLISH	80%	86%	76%	1.94**
STAND-ALONE FINANCIALS	76%	86%	67%	3.58***
AUTHORITY TO CONTRIBUTE	82%	83%	81%	0.44
CONTRIBUTION RATE	92%	90%	95%	1.46
FUNDING POLICY	93%	95%	90%	1.47
Total	87%	91%	84%	
GASBS No. 27, paragraph 21:				
CONTRIBUTION	91%	90%	92%	0.50
ARC	88%	89%	88%	0.33
NPO INTEREST	51%	25%	56%	2.66***
NPO-CHANGE	51%	30%	56%	2.12**
NPO-YEAR-END (1)	83%	83%	83%	0.11
PENSION COST	74%	81%	69%	2.01**
PERCENTAGE	44%	47%	42%	0.78
NPO-YEAR-END (2)	73%	75%	72%	0.52
ACTUARIAL DATE	97%	100%	95%	2.46**
ACTUARIAL COST	96%	96%	95%	0.51
ACTUARIAL VALUE	91%	94%	88%	1.59
INFLATION	72%	85%	60%	4.32***
RETURN	97%	97%	97%	0.05
SALARY	97%	97%	97%	0.05
POSTRETIREMENT	64%	77%	53%	3.92***
METHOD	84%	94%	72%	4.20***
PERIOD	78%	93%	60%	5.89***
OPEN/CLOSED	70%	80%	57%	3.53***
Total	78%	80%	74%	

Table 4
Components of Financial Disclosure Index (INDEX) (Cont.)

Components of Index	Percentage in Compliance[a]			
	Full Sample (n = 233)	Michigan (n = 108)	Pennsylvania (n = 125)	Chi-squared (p-value)[b]
Schedule of funding progress in RSI (most recent valuation and two preceding valuations):				
VALUATION DATE	57%	67%	48%	1.26
PLAN ASSETS	66%	67%	66%	0.05
ACCRUED LIABILITY	66%	67%	66%	0.05
UNDERFUNDED LIABILITY	66%	67%	66%	0.05
FUNDED RATIO	66%	67%	66%	0.05
COVERED PAYROLL	66%	67%	66%	0.05
UNDERFUNDED RATIO	66%	67%	66%	0.05
Total	65%	67%	63%	
Schedule of funding progress in RSI (for each of the past six consecutive years for the plan):				
VALUATION DATE	85%	87%	82%	0.61
PLAN ASSETS	85%	87%	82%	0.61
ACCRUED LIABILITY	85%	87%	82%	0.61
UNDERFUNDED LIABILITY	85%	87%	82%	0.61
FUNDED RATIO	85%	87%	82%	0.61
COVERED PAYROLL	85%	87%	82%	0.61
UNDERFUNDED RATIO	84%	85%	82%	0.37
Total	85%	87%	82%	
Schedule of employer contributions (for each of the past six consecutive years for the plan):				
ARC-DOLLAR	76%	81%	67%	1.57
ARC-PERCENT	75%	80%	67%	1.40
Total	76%	81%	67%	

[a] The component of the index corresponds to the forty-three possible disclosures in Table 2. The percentage represents the percentage of disclosures included in the financial statements that are applicable to the local government's pension plans.
[b] *, **, *** Means are different at p-value < 0.10, 0.05, and 0.01 (two-tailed), respectively.

Table 5
Frequency Distribution of Financial Disclosure Index (INDEX)

Panel A: All forty-three possible disclosures (INDEX #1):

	Full Sample (n = 233)		Michigan (n=108)		Pennsylvania (n=125)	
INDEX	**#**	**%**	**#**	**%**	**#**	**%**
31% to 40%	3	1%	1	1%	2	2%
41% to 50%	5	2%	2	2%	3	2%
51% to 60%	18	8%	3	3%	15	12%
61% to 70%	23	10%	15	14%	8	6%
71% to 80%	38	16%	7	6%	31	25%
81% to 90%	55	24%	18	17%	37	30%
91% to 100%	91	39%	62	57%	29	23%
Total	233	100%	108	100%	125	100%
Mean	82%		87%[a]		79%[a]	
Median	85%		92%		81%	

Panel B: Ten actuarial methods and assumptions only (INDEX #2):

	Full Sample (n = 233)		Michigan (n=108)		Pennsylvania (n=125)	
INDEX	**#**	**%**	**#**	**%**	**#**	**%**
10% to 20%	4	2%	3	3%	1	1%
21% to 30%	3	1%	-	-	3	2%
31% to 40%	4	2%	1	1%	3	2%
41% to 50%	6	3%	1	1%	5	4%
51% to 60%	18	8%	2	2%	16	13%
71% to 80%	33	14%	10	9%	23	19%
81% to 90%	71	30%	26	24%	45	36%
91% to 100%	94	40%	65	60%	29	23%
Total	233	100%	108	100%	125	100%
Mean	85%		91%[a]		80%[a]	
Median	90%		100%		86%	

[a] The difference between Michigan and Pennsylvania is significant at a p-value < 0.01.

Table 5 (Cont.)
Frequency Distribution of Financial Disclosure Index (INDEX)

Panel C: UAAL and related disclosures in RSI only (INDEX #3): [27]

	Full Sample (n = 133)		Michigan (n=78)		Pennsylvania (n=55)	
INDEX	**#**	**%**	**#**	**%**	**#**	**%**
0% to 10%	26	20%	14	18%	12	22%
21% to 30%	2	2%	1	1%	1	2%
51% to 60%	2	2%	1	1%	1	2%
71% to 80%	10	6%	4	5%	6	11%
81% to 90%	5	4%	1	1%	4	7%
91% to 100%	88	66%	57	74%	31	56%
Total	133	100%	78	100%	55	100%
Mean	76%		79%		72%	
Median	100%		100%		100%	

[27] Full sample of 233 governments is not included in Panel D because only certain governments are required to present the RSI disclosures under GASBS No. 27.

Table 6
Descriptive Statistics
Independent and Other Variables Partitioned by State[28]

Panel A: Descriptive Statistics for Continuous Variables

	Michigan (n = 108)			Pennsylvania (n = 125)				
Variable	**Mean**	**Median**	**S.D.**	**Mean**	**Median**	**S.D.**	**T-statistic**	
Total Assets ($M)	299	109	1,002	175	59	74	-1.04	
Total Revenues ($M)	107	41	292	170	39	786	0.78	
Population (thousand)	107	44	257	114	42	208	0.23	
Non-current liabilities to total population	950	729	998	697	453	707	-2.25	**
Income per capita ($T)	23	21	10	22	20	8	-1.08	
DEBT	2.74	2.86	0.56	2.64	2.66	0.48	-1.48	
POP	4.63	4.64	0.53	4.75	4.63	0.45	1.86	*
ABILITY	0.44	0.44	0.28	0.24	0.17	0.30	-5.03	***
INCOME	4.34	4.33	0.15	4.32	4.30	0.13	-0.89	

Panel B: Frequency Counts for Dichotomous Variables

	Michigan (n = 108)		Pennsylvania (n = 125)		
Variable	**Coded[29] 1**	**Coded 0**	**Coded 1**	**Coded 0**	**T-stat/Chi-Sq. stat**
GFOA	45 (42%)	63 (58%)	31 (25%)	94 (75%)	7.50 ***
AUDIT	4 (4%)	104 (96%)	4 (3%)	121 (97%)	0.04
APPOINT	61 (56%)	47 (44%)	51 (41%)	74 (59%)	5.71 **
FUNDED	47 (44%)	61 (56%)	37 (30%)	88 (38%)	2.22 **

Note: This table provides descriptive statistics for 233 local governments with sole-employer DB pension plans partitioned by state. *, **, *** = p < 0.10, 0.05, 0.01 (two-tailed), respectively. The variables are defined as follows:

DEBT = natural log of ratio of non-current liabilities to total population;
POP = natural log of total population;
ABILITY = ratio of unrestricted net asset to total expenses (ability to continue service ratio);
INCOME = natural log of average income per capita;
GFOA = 1 if local governments received GFOA Certificate of Achievement, else 0;
AUDIT = 1 if audited by Big Four accounting firm; else 0;

[28] Amounts from the statement of net assets or statement of activities are for the total primary government (i.e., includes governmental and business-type activities).

[29] Number of governments coded and related percentage in parenthesis.

APPOINT	=	1 if government managed by professional manager, else 0; and
FUNDED	=	1 if pension plan has a UAAL (that is, the pension plan's actuarial accrued liability exceeds the actuarial value of plan assets), else 0.

Table 7
Correlation Matrices

	GFOA	DEBT	AUDIT	STATE	APPOINT	POP	ABILITY	FUNDED	INCOME
GFOA	1.00								
DEBT	0.15**	1.00							
AUDIT	0.16**	0.01	1.00						
STATE	0.17**	0.18***	0.01	1.00					
APPOINT	0.21***	0.34***	0.01	0.17***	1.00				
POP	0.30***	-0.29***	0.25***	-0.11	-0.47**	1.00			
ABILITY	0.14**	0.01	-0.09	0.36***	0.40***	-0.31***	1.00		
FUNDED	0.11	0.14*	0.06	0.16**	0.18	-0.20	0.22	1.00	
INCOME	0.19***	0.12	0.06	0.08	0.24***	-0.07	0.30***	0.14**	1.00

Note: This table provides the Spearman rank correlation matrices for the independent variables. *, **, *** = $p < 0.10, 0.05, 0.01$ (two-tailed), respectively. The variables are defined as follows:

INDEX = percentage of disclosures included in the financial statements that are applicable to the local government's pension plans;

GFOA = 1 if local government received GFOA Certificate of Achievement, else 0;

DEBT = natural log of ratio of non-current liabilities to total population;

AUDIT = 1 if audited by Big Four accounting firm, else 0;

STATE = 1 if local government is in Michigan, else 0.

APPOINT = 1 if government managed by professional manager, else 0;

POP = natural log of total population;

ABILITY = ratio of unrestricted net assets to total expenses (ability to continue service ratio);

FUNDED	=	1 if pension plan has a UAAL (that is, the pension plan's actuarial accrued liability exceeds the actuarial value of plan assets), else 0; and
INCOME	=	natural log of average income per capita.

Table 8
OLS Regression Results for the Financial Disclosure Index of
Local Governments with Sole-employer Defined Benefit Pension Plans
(N = 233)

$$INDEX = \alpha + \beta_1 GFOA + \beta_2 DEBT + \beta_3 \text{AUDIT} + \beta_4 STATE + \beta_5 APPOINT + \beta_6 POP + \beta_7 ABILITY + \beta_8 FUNDED + \beta_9 \text{INCOME}$$

			Model 1		Model 2		Model 3	
Variable	**Hypothesis**	**Predicted Relation**	**Coefficient**	**P-value**	**Coefficient**	**P-value**	**Coefficient**	**P-value**
Intercept		?	7.46	0.81	11.43	0.78	18.64	0.87
GFOA	H1	+	6.23	0.01	6.19	0.02	3.80	0.31
DEBT	H2	+	4.06	0.04	2.51	0.07	14.00	0.02
AUDIT	H3	+	-1.93	0.35	-0.90	0.44	5.95	0.36
STATE	H4	+	6.26	0.00	11.81	0.00	0.86	0.45
APPOINT	H5	+/-	4.74	0.04	2.59	0.38	18.97	0.02
POP		+	-0.12	0.48	2.60	0.20	15.20	0.22
ABILITY		+	-2.38	0.25	-4.28	0.18	1.85	0.44
FUNDED		-	-5.66	0.00	-6.28	0.01	1.73	0.40
INCOME		+	15.31	0.01	13.47	0.06	17.70	0.04
Model F-ratio			6.35		5.06		3.65	
P-value			<0.01		<0.01		<0.01	
Adjusted R^2			0.28		0.25		0.27	

Notes:
1. Model 1 = all forty-three possible disclosures; Model 2 = ten actuarial methods and assumptions disclosures only; Model 3 = UAAL and related disclosures in RSI only.
2. P-values are one-tailed if direction is predicted, otherwise two-tailed. The variables are defined in Table 7.