

U.S. CORPORATE PENSION EXPENSE AND THE 2007-2009 FINANCIAL CRISIS: AN INTERRUPTED TIME SERIES ANALYSIS

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ABSTRACT

This research presents a model for predicting corporate pension expenses. By considering changes in financial statement variables that included operating profit margin, working capital levels, and cash levels the model explored directional impact on the dependent variable, pension expenses. Change was measured between 2004 and 2013 using the Kellough interrupted time series analysis to capture the effect of the 2007-2009 financial crisis. The analysis found that operating profit margin has a positive impact on pension expense levels, while higher levels of net working capital and cash have an inverse association. In finding the change variable of the interrupted time series event to have a positive sign, the analysis expands prior research in offering evidence that firms might not use pension expenses as a tool for earnings manipulation. Rather, firms appear to increase pension expense funding as a financial shock occurs but reduce during improving financial and economic conditions.

JEL: C22, G23

KEYWORDS: Pension Expense, Financial Crisis, Time Series

INTRODUCTION

Pension benefits are continuing a transformation in corporate America as firms increasingly adopt defined contribution plans rather than defined benefit or pension plans (Huberman, Iyengar, & Jiang, 2007). In general, pension plan sponsors are concerned with two primary financial issues: Pension Funding and Pension Accounting. Pension funding is the cash contributions made to the pension plan. Laws described in the Internal Revenue Code (IRC), which determines the annual minimum required contribution and annual maximum tax-deductible contribution, govern pension funding. Pension accounting is the annual pension expense calculation and disclosure of a pension plan's assets and liabilities in a company's financial statement. The Financial Accounting Standards Board (FASB) governs pension accounting under generally accepted accounting principles (GAAP) in the U.S. Amounts calculated under pension funding rules are completely different from those calculated for pension accounting (American Academy of Actuaries, 2004). The financial crisis of 2007-2009 was perhaps the most important economic event since the Great Depression, but the gap between crises of this magnitude means we must look towards long historical time series to gain perspective on patterns of global crises. The financial crisis began in early August of 2007 with runs in several short-term markets formerly considered "safe".

The run on money market mutual funds and the resulting turmoil played an important role in transmitting the crisis to the other sectors and internationally (Gorton & Metrick, 2012). Defined benefit pension plans transmit shocks to the rest of the economy through the balance sheet of the sponsor. Accounting standards based on market valuation principles generate volatility in sponsor's balance sheet and income statements

(Impavido & Tower, 2009). Evidence suggests the negative impact of pension plans on corporate financial health has become a reality for many companies, as evidenced by the pension's impact on profitability, cash flows and even credit ratings. The results from this analysis show that these effects are mixed: financial shock is a valid predictor of pension funding, but increases in funding raises questions of a proactive manager increasing funding before earnings suffer. From a financial perspective, pension plans have become a material liability for many sponsors as indicated in Figure 1. From a business standpoint, defined benefit plans are affecting key strategic decisions, such as mergers and acquisitions, competitive positioning and capital expenditures, with the strain on finances limiting many companies' ability to invest in new initiatives and to manage outstanding financial arrangements. Operationally, many financial executives spend a considerable amount of time on pension plans – distracting them from other business initiatives. Four major factors have led to the pension management issues plan sponsors are facing today: pension financing remains volatile; pension costs continue to increase; accountability is unclear; and corporate strategies are unmet. (Morris, 2005).

Total Pension Expense Years

Figure 1: Total Pension Expense Trends 2004 - 2013

The trend in pension expenses (see Figure 1) for the sample of firms in this analysis, 2004-2013, finds that expenses are increasing overall with a jump in 2009 and more volatility in 2013. From 2004 to 2008, pension expenses were relatively stable. These data are in nominal terms.

Existing literature explores corporate investment decisions surrounding funding of defined benefit plans (Webb, 2007), the relationship between pension expenses and capital structure (Shivdasani & Stefanescu, 2010), and optimal corporate pension strategies that consider the effects of insurance and taxes in the presence of capital market imperfections (Bicksler & Chen, 1985). This analysis contends, however, that such corporate decisions ebb and flow over time. Financial shock, such as the Great Recession, upsets the basis and outcome of the decisions that are evident through financial statement ratios. Financial accounting standards that identify cash flows and financial statement ratios offer insight into liquidity and cash management, especially in light of dire financial and economic conditions. Influence on pension expenses – before, during, and after the financial crisis – are considered in measuring the use of current assets and liquidity and the directional impact of such relationship. Research analysis extends from these assumptions. We contend that prior studies have inadequately addressed the use of cash relative to pension funding, especially in an environment with financial and economic shock present. The research questions are as follows: 1) To what extent do financial statement ratios of current account management explain pension funding? 2) Do financial and economic conditions affect pension funding over time?

LITERATURE REVIEW

Constraints of accounting and tax rules affect the implementation of a firm's pension funding policy. The intent of the generally accepted accounting principles (GAAP) calculation is to account for current and past

service costs and adjust for changes in actuarial assumptions. However, the Financial Accounting Standards Board (FASB) smoothing mechanisms, the GAAP requirement to accrue interest on discounted liabilities, and differences in actuarial assumptions will cause large differences between the net periodic pension cost (NPPC) calculation and the tax calculation. Most companies only report two accounts in the financial statements: NPPC and an intangible asset or liability. The intangible records the difference between the NPPC and plan contributions.

If, at year-end, plan contributions are more than accumulated NPPC, the balance sheet will report an asset that reflects prepaid pension costs; otherwise, it will show an accrued pension liability. GAAP requires extensive disclosure in the pension footnote (Klamm & Spindle, 2006). When implementing GAAP rules, companies frequently have two objectives: reduce expense to maximize income, and maintain a constant expense to provide income stability (Canan, 1997). Over the past decade, a large number of employers have made changes to their retirement plans. The motivations for change are varied, but cost reduction is a primary reason. The recent economic crisis has strained defined benefit (DB) plans and made cost a pressing issue for both active and closed DB sponsors. Increased levels of health care costs are also spurring budget cuts. Some companies have frozen or closed their DB plans to all or newly hired employees or switched to a hybrid DB plan which is a more portable account-based plan. The shift from DB to defined contribution (DC) only plans has been a trend that started to escalate in 2004. At the end of 2004, 73 *Fortune* 100 companies offered either a traditional or a hybrid DB plan. In 2013, only 30 *Fortune* 100 companies offered a DB plan to new salaried hires. Almost 10% of companies have made no changes to their plans since 1998 (McFarland, 2013).

Recent trends have been toward DC plans as opposed to DB. In fact, defined benefits in the private sector have been vanishing since the collapse of the dot-com bubble at the turn of the century when healthy companies began closing their defined benefit plans. The 2008 financial collapse provided another push in the shift to defined contribution plans. The pressures created by the financial markets reinforce other explanations offered to explain the shift. These include a desire to cut compensation, growing health care costs, concerns about costs and risks of DB plans, and the evolution of a two-tiered pension system with defined contribution plans for rank-and-file employees and defined benefit plans for upper management (Munnell, 2011). The cost of the financial crisis is immense. One number is sufficient to indicate the scale of the costs in the United States: The crisis is responsible for reducing employment by eight million jobs and perhaps more depending on exactly when the recovery begins. Large banks that get into financial trouble not only affect shareholders and employees, but also firms and employment across the country and around the world (Poole, 2010). The chaos in the global financial markets within the financial crisis badly affected pension plan funding, with most of the damage occurring in the last quarter of 2008. The crisis reduced U.S. firms' balance sheet strength, leading to consequences for several areas of the business, including capital expenditure decisions, loan covenants and credit rating decisions (Global Investor, 2014). The decrease in funding ratios will cause pension expenses to increase in future years when sponsors face borrowing constraints. As of October 2008 estimated pension expenses among the S&P 500 constituents averaged US\$35 billion for 2009 after a fall in the index of 20% from the peak. However, the S&P 500 index has since fallen another 35% implying a significantly higher amount of expensing will be necessary to catch up (Impavido & Tower, 2009).

By looking at the cumulative effects of all pension rate assumptions on pension expense and focusing directly on pension expense as a whole, Parker and Sale (2007) extends prior research. Rationale is provided that pension expense is likely the earnings management lever of choice as it allows managers to manipulate earnings directionally as needed without easily being detected by interested outside parties while remaining transparent and representative of actual financial position (Parker, Swanson, & Dugan, 2011). Pension accounting is complicated; the principles governing cost determination are complex, and the required disclosures are confusing enough that even sophisticated market participants have difficulty understanding them. Quarterly pension costs are one of the largest single expense items for firms with

pension plans (around 15% of income before extraordinary items in our sample). Under FASB codification ASC 270, net pension costs are recognized when incurred, or as the benefit provided by the expense is realized. Over the period of 2004-2010, there is significant variation in quarterly pension costs firms reported. In addition, income-increasing changes in pension costs are significantly associated with meeting or beating analysts' forecasts in a given quarter. Income-decreasing changes to net periodic pension costs that would cause a firm to miss it earnings forecast are extremely rare. Finally, evidence suggests that income-increasing and income-decreasing changes in quarterly pension costs are "settled up" in the fourth quarter (e.g., they reverse) (Blankley, Comprix, & Hong, 2013).

Results suggest that the current smoothing mechanism tends to induce significant biases in the recognized pension expenses. For a majority of the sample firms, the tendency is to overstate the sponsoring firms' earnings in the long run. Largely, such biases reflect the combination of both ineffective amortization of the deferred gains and losses and questionable latitude in pension rate discretions (Jiang, 2011). The need to properly administer and account for pension funds becomes apparent when considering the size of these funds. For example, in 2004 the pension expense as a percentage of pre-tax income is 52.27% for General Motors Corporation, 14.16% for Hewlett-Packard, 1.96% for Coca-Cola. Financial and operating performance is also measured for these firms. First, average stock returns (AR) are measured to observe if the stocks of the firms in each portfolio have positive or negative returns. Then, cash flows to total assets (CF/TA), net income to total assets (NI/TA), sales to total assets (Sales/TA) and sales to net income (Sales/NI) ratios are calculated at the end of a fiscal year (Castro-Gonzalez, 2012).

There has long been an important disconnect between the financial impact of the pension plan implied by accounting accruals, and the information disclosed in the footnotes. Despite much attention from the accounting profession and Wall Street, results suggest that investors still do not correctly perceive how DB pension plans influence corporate valuation in the U.S. marketplace. As a result, over the past decade, pension accruals embedded in the financial statements have been particularly poor stand-ins for pension value. Indeed, pension accruals are potentially worse than noise, as there are times when they negatively correlate with the value of pension assets (Coronado, Mitchell, Sharpe, & Nesbitt, 2008). Earnings before interest and taxes (EBIT) reflect the pension cost (or income) recorded on the income statement, but this expense differs from the pension contribution, which is the tax-deductible amount. In general, EBIT as reported in the income statement overstates (understates) taxable-income when the pension expense is below (above) the pension contribution (Shivdasani & Stefanescu, 2010).

DATA AND METHODOLOGY

The methodology for this analysis considers selected variables that represent changes in income statement, balance sheet, and statement of cash flow effects and pension expenses. For the model, three scenarios are considered: Earnings Before Interest and Taxes (EBIT) as a percent of net income; Net Working Capital (NWC) as a percent of total assets as a balance sheet variable; and net cash flow as a measure of positive or negative cash flows. The following regression equation was estimated to identify determinants of pension expense funding

(PEF): PEF = $\alpha + \beta 1$ (EBIT/NI) + $\beta 2$ (NWC/total assets) + $\beta 3$ (net cash flow) + β (BEFORE) + β (CHANGE) + β (AFTER) (1)

EBIT as a percent of net income is also known as operating margin, a measure of pricing strategy that describes a company's operating efficiency. The higher the operating margin, the more profitable is a company's core business. It is a measure of managerial flexibility and competency, particularly during harsh economic times. A healthy operating margin is required to be able to pay for its fixed costs, such as interest on debt. Working capital to total assets ratio is a liquidity ratio used to analyze the extent of assets tied up in working capital or the amount of assets required to run the day-to-day operations of a company.

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Net change in cash is a gauge of the firm's cash flows that may be used to develop new products, buy back stock, pay dividends, reduce debt, or conduct day-to-day business. Revenues and expenses are drivers of net cash flow. Data were collected from OneSource Business Global Browser and compiled for years 2004 to 2013, inclusive, with annual frequency observation of data. The data includes a random selection of 400 firms listed on the S&P 500 stock exchange. This represents 40 firms per year over ten years. Pension expenses represent total pension expenses that include all expenses related to funding and maintaining a defined benefit plan. This analysis utilizes a methodology that is similar to the interrupted time-series analysis model used by Kellough (1990); Netter, Wasserman, and Kutner (1990, pp. 370-375); Miller and Pierce (1997); and Landry, Boozer, and Lowe (2012). As Kellough noted, the limited number of pre and post data points suggests that time-series is preferred to another modeling technique known as autoregressive integrated moving average (ARIMA) that could have otherwise been used as a statistical technique. The interruption in the model for this study is the change in economic conditions at the middle of the 2007-2009 Great Recession. We use 2008 as that fulcrum point. The model examines if economic conditions affect the relationship between pension funding and current asset management, especially to the extent that directional impact changes. An essential component of this measure is the extent that such change occurs concurrently or before or after a change in economic conditions.

Backwards regression was employed for this analysis. This is a variation of stepwise regression that involves adding or deleting variables from a model based on statistical significance of that variable. All variables are initially included in the model and removed as necessary between iterations. Data are entered as cases in a year-by-year format for a total of ten years for each of the 40 firms analyzed: four years before the change in economic conditions; the contemporaneous year of the change in economic conditions; and five years after the change in economic conditions. Each firm is considered independently. Three independent variables are employed. A counter variable is employed that is coded one for the first year of the analysis, two for the second year, and three for the third year, four for the fourth year, etc. This counter variable is called BEFORE. The second independent variable is dichotomous in nature and is coded zero for the five years of analysis before and including the year of the change in economic conditions, and one for observations for the five years immediately after the change year. This variable is called CHANGE. The remaining independent variable is a post-intervention counter that is also coded in the following manner: coded as zero for observations five years prior to and including the contemporaneous year of change of economic conditions, one for first year after change in economic conditions, two for the next year, three for the next year, and so forth. This variable is called AFTER.

The intercept for the multiple regression equation describes the value of the dependent variable at the beginning of the time period. The coefficient, or slope, for the BEFORE variable describes the annual increase or decrease in the dependent variable that was happening before the change in economic conditions. The estimated increase or decrease in those years is unaffected by the counter AFTER variable, as that variable is coded zero for all years prior to the change in economic conditions. The coefficient for CHANGE estimates the one-time increase or decrease in the value of the independent variable that came about in the first year following the change in economic conditions. The coefficient, or slope, of the AFTER variable estimates the increase or decrease in slope that occurred after the change in economic conditions. The coefficient for the counter AFTER variable must be added to the coefficient for BEFORE to get the estimated slope after the change. For the analysis, three interrupted time-series regression analyses were run for pension expenses as the dependent variable. For each analysis, three independent variables -BEFORE, CHANGE, and AFTER - were included. Each of the three iterations also included a fourth independent variable: OPER INC as a measure of operating income derived from dividing Earnings Before Interest and Taxes (EBIT) by Net Income (NI); WORK CAP to denote net working as a percentage of total assets (TA); and CASH as a measure of the net change in cash from operations, investment, and financing from prior year to current year. Independent variables are categorized according to counter variables or financial statement variables. Ordinary Least Squares estimates were obtained. Table 1 summarizes each independent variable in the model. Output results are presented in Table 2.

Counter Variables					
BEFORE	Measure of change in financial statement variable before, concurrently, and after change year of financial crisis,				
CHANGE	respectively.				
AFTER					
Financial Statement Variables					
OPER_INC	Operating profit margin				
WORK_CAP	Net working capital as a percentage of total assets				
CASH	Net change in cash available from prior year				

Table 1: Variables Analyzed within the Model

This table presents a description of independent variables used in the analysis. These are listed as counter variables – BEFORE, CHANGE, and AFTER – and financial statement variables – OPER_INC, WORK_CAP, and CASH.

Autocorrelation may be present in a model when serial data is utilized (Miller & Pierce, 1997). The existence of autocorrelation violates a basic assumption of Ordinary Least Squares (OLS) regression. Autocorrelation leads to an underestimation of the variance of the error terms and an overestimation of the significance of the coefficients. The Durbin-Watson statistic is a test statistic used to detect the presence of autocorrelation in the residuals from a regression analysis (Durbin & Watson, 1950) and is used in this study to indicate if autocorrelation is present. If the Durbin-Watson statistic is outside an acceptable range, transformation of the data, through the Cochrane-Orcutt (CORC) estimation procedure, is necessary to take into account the correlation of the error terms (Cochrane & Orcutt, 1949). Panels A, B, and C of Table 2 summarize the multivariate statistical output of the model. For each analysis, all independent variables are included in the regression, with predictor variables removed in finding the best fit for the model.

Operating income (OPER_INC) is a statistically significant predictor of pension expense allocation. The relationship is positive, where Pension Expenses = $34.246 + .261(OPER_INC)$. With a coefficient of determination of .068, only 6.8% of the variance of the dependent variable is explained by the one independent variable included in the model. BEFORE, CHANGE, and AFTER are excluded from the model using backwards regression. Interestingly, CHANGE is almost significant at the p < .10 level of significance and including that variable increases R squared to .074. The variable has a coefficient of .075 and would have a very small impact on the model if included. Durbin-Watson coefficient is in an acceptable range. Panel A of Table 2 summarizes this output.

Panel A: Operating Income						
Variable	Coefficient	t-statistic	Durbin-Watson	R-square		
Pension expenses			2.050	.068		
Constant	34.246	.533				
OPER_INC	.261	5.398***				
Panel B: Net Working Capital						
Variable	Coefficient	t-statistic	Durbin-Watson	R-square		
Pension expenses			2.089	.067		
Constant	492.613	5.988***				
WORK_CAP	248	-5.098***				
CHANGE	.100	2.051**				
Panel C: Net Change In Cash						
Variable	Coefficient	t-statistic	Durbin-Watson	R-square		
Pension expenses			2.125	.117		
Constant		4.241***				
CASH	332	-7.049***				
CHANGE	.080	1.703*				

Table 2: Time-Series Regression Output of Sample Firms

This table shows backwards regression output for each independent variable in the model on pension expenses. Each independent variable consists of financial statement variables and counter variables. Panel A shows results for operating income of sample firms. Panel B shows results for net working capital of sample firms. Panel C shows results of net changes in cash of sample firms. In addition to regression output results, a Durbin-Watson statistic measures the extent of autocorrelation and R-square reflects to what extent the variable explains changes in pension expenses. ***, **, and * indicate significance at the one, five, and ten percent levels, respectively.

Unlike operating income, net working capital (WORK CAP) has an inverse impact on the dependent variable, pension expenses. The coefficient for WORK CAP of -.248 shows that for every dollar increase in pension expenses net working capital declines by \$0.248. CHANGE is also a statistically significant predictor in the model and has a positive relationship with pension expenses. During the full year associated with the beginning of the financial crisis, firms with higher levels of current assets versus current liabilities allocate more to pension expenses. With an R squared of 6.7% the two predictor variables account for a relatively small variance in pension expenses. Durbin-Watson value is in an acceptable range. BEFORE and AFTER variables were excluded from the backwards regression output. See Panel B of Table 2 for a summary of the net working capital analysis. Net changes in cash (CASH) from prior year investment, financing, and operations activities show that an inverse relationship exists with allocations for pension expenses. The relationship is that as a company allocates each dollar to pension expenses \$0.332 less cash is available to the firm from prior year. CHANGE is also an acceptable predictor variable at p < .10 and has a positive relationship. Durbin-Watson coefficient is in an acceptable range. The two variables in the model account for 11.7 percent of the variance in pension expenses. BEFORE and AFTER variables were excluded from the backwards regression output. See Panel C of Table 2 for a summary of net changes in cash for sample firms.

RESULTS AND DISCUSSION

The goal of the research was to examine to what extent do financial statement ratios of current account management explain pension funding and if financial and economic conditions affect pension funding over time. Output from the analysis found statistically significant relationships between each financial statement variable and pension expenses and between one counter variable in two separate analyses. Although the coefficient of determination was low for each of the three analyses, we did not expect the variables analyzed to be responsible for high levels of variance in the dependent variable. Rather, our goal was to measure how well relevant balance sheet and income statement accounts and ratios predict pension expense funding and if that relationship changed because of the Great Recession of 2007 – 2009. The model shows that higher operating margins positively relate to more pension expense funding, but that higher levels of net working capital and changes in cash available have a negative impact. It is interesting that the latter two analyses, WORK_CAP and CASH, each impact pension expenses inversely but the change coefficient is positive for each analysis. These results are consistent with Beaulier (2012) and suggest that the financial crisis affected the way firms manage cash within a larger macroeconomic environment.

Results from the analysis clearly indicate that financial shocks that Impavido and Tower (2009) identified are valid in this analysis. While the model does not address a time period beyond the nine years before, during, and after the financial crisis, volatility is present in balance sheet and income statement accounts. Pension funding and underfunding represents a need for cash and a cash drain to those firms who are underfunded. We expected operating income to be positively related to pension expenses, since higher levels of income are available for pension responsibilities. We did not expect working capital and cash to have an inverse impact, given an environment of funding difficulties that demand higher levels of current assets. Although a small coefficient, we did not expect the change variable to be positive in suggesting that firms began to allocate more resources to pension funding as the recession began. Parker et al., (2007, 2011) raised a question of pension expenses and corporate earnings that this analysis extends through the interrupted time series effect of measurement. Increases in pension expenses or funding during weak economic conditions in part dispels the idea of manipulation but also raises a question of managers proactively increasing funding before earnings suffer. Although the time period after the crisis started (AFTER) was not statistically significant, in two of the three analyses that variable expressed a negative coefficient that suggests funding levels were reduced after the crisis but while earnings had not recovered.

CONCLUDING COMMENTS

The analysis illustrates how selected financial statement variables offer predictive value in a multivariate model. The model extends Parker et al., (2007, 2011) research and offers a basis for directional impact of earnings manipulation over a time period including a financial shock. Referring to Figure 1 it is easy to see that the variance in the measure of pension expenses has increased over the last few years, the period of time concurrent with and post to the financial crisis. With low coefficients of determination, our model was not developed to explain much of this variance but forms a basis that extends prior research addressing corporate design-making (Webb, 2007) in times of market turmoil (Bicksler & Chen, 1985). Finding that funding changes appear to coincide with firms proactively addressing slower earnings is consistent with managing income and expenses (Canan, 1997), but shows that funding for at least this account is made in anticipation of falling earnings to come. To take this research forward, other financial statement variables could be included beyond the three broad measures incorporated in this analysis. While the dataset used in this analysis considered exclusively pension expenses for defined benefit plans, the relationship between pension plans and the proliferation of defined contribution plans would add a different perspective to the analysis. Matching percentages, trends toward corporate offering of either type of retirement plan, and even employee participation are areas that could be beneficial for future research.

REFERENCES

American Academy of Actuaries (2004). "Fundamentals of Current Pension Funding and Accounting For Private Sector Pension Plans," Accessed May 13, 2015 at: www.actuary.org.

Beaulier, S. (2012) "Principles for Pension Reform in Alabama: Rethinking the Defined Benefit in Alabama's Retirement System," *Alabama Policy Institute*, p. 1-14.

Bicksler, J. L., and Chen, A. H. (1985). "The Integration of Insurance and Taxes in Corporate Pension Strategy," *Journal of Finance*, Vol. XL(3), July, p. 943-955.

Blankley, A., Comprix, J. and Hong, K. (2013) "Earnings Management and the Allocation of Net Periodic Pension Costs to Interim Periods," *Advances in Accounting*, Vol. 20(1), June, p. 27-35.

Canan, M.J., (1997) Qualified Retirement and Other Employee Benefit Plans, St. Paul: West Publishing Co. (1997) p. 671.

Castro-Gonzalez, K. (2012) "Portrait of a Company: Defined Benefit Pension Plan Sponsors," *Accounting and Taxation*, Vol. 4(1), p.43-52.

Cochrane, D. and Orcutt, G. H. (1949) "Application of least squares regression to relationships containing autocorrelated error terms," *Journal of the American Statistical Association*, Volume 44, 32-61.

Coronado, J., Mitchell, O., Sharpe, S., and Nesbitt, B. (2008), "Footnotes Aren't Enough: The Impact of Pension Accounting on Stock Values," *Working Papers – U.S. Federal Reserve Board's Finance & Economic Discussion Series 1-25.*

Durbin, J. and Watson, G. S. (1950) "Testing for serial correlation in least squares Regression," I. *Biometrika*, Volume 37, 409-428.

Gorton, G. and Metrick, A. (2012) "Getting Up to Speed on the Financial Crisis: A One-Weekend-Reader's Guide," *Journal of Economic Literature*, Vol. 50(1), March, p. 128-150.

Huberman, G., Iyengar, S.S., and Jiang, W. (2007). "Defined Contribution Pension Plans: Determinants of Participation and Contributions Rates", *Journal of Financial Services Research*, Vol. 31(1), March, p.1-32.

Impavido, G. and Tower, I. (2009) "How the Financial Crisis Affects Pensions and Insurance and Why the Impacts Matter," IMF Working Paper 09/151, July (Washington: International Monetary Fund).

Jiang, X. (2011) "The Smoothing of Pension Expenses: A Panel Analysis," *Review of Quantitative Finance & Accounting*, 37(4), p. 451-476.

Kellough J. E. (1990) "Federal agencies and affirmative action for blacks and women," *Social Science Quarterly*, Volume 71, Number 1, 83-91.

Klamm, B.K. and Spindle, R.M. (2006) "Pension Expense and Plan Contributions: Accounting Standards and Tax Regulations, "*Journal of Pension Planning and Compliance*," Vol. 31(4), p. 75-95.

Landry, R.J. III; Boozer, B.B. Jr., & Lowe, S.K. (2012). Measurement of Homestead Exemption Utilizing Home Values. Journal of International Finance Studies, 12(3), pp. 84-93.

McFarland, B. (2013) "Retirement Plans Offered by 2013 *Fortune* 100," *Towers Watson*, November 13, Accessed May 13, 2015 at www.towerswatson.com.

Miller, D. E. and Pierce, P.A. (1997) "Lotteries for education: Windfall or hoax?" *State and Local Government Review*, Volume 29, Number 1, 34-42.

Morris, J. (2005) "The Changing Pension Landscape," *Compensation and Benefit Review*, Vol. 37(5), Sep/Oct., p. 30-35.

Munnell, A. (2011) "Private Sector Defined Benefit Plans Vanishing," *Market Watch*, December 30, Accessed May 13, 2015 at http://blogs.marketwatch.com/encore/2011/12/30/private-sector-pensions-are-really-disappearing/

Netter, J., Wasserman, W., & Kutner, N.H. (1990). Applied linear statistical models (3rd Edition), Burr-Ridge, Illinois: Richard D. Irwin, Inc.

Parker, P. and Sale, M. (2007) "Using Pension Expense to Manage Earnings: Implications for FASB Standards," *Academy of Accounting and Financial Studies Journal*, Vol. 1(3), September, p. 109.

Parker, P., Swanson, N. and Dugan, M. (2011) "An Empirical Examination of the Impact of the Sarbanes Oxley Act in the Reduction of Pension Expense Manipulation," *Advances in Accounting*, Vol. 27(2), December, p. 233-241.

Poole, W. (2010) "Causes and Consequences of the Financial Crisis of 2007-2009," *Harvard Journal of Law and Public Policy*, Vol. 33(2), Spring, p.421-441.

Shivdasani, A. and Stefanescu, I. (2010) "How Do Pensions Affect Corporate Capital Structure Decisions?" *The Review of Financial Studies*, Vol. 23(3), March, p. 1287-1323.

"U.S. Retirement Risk Rising Despite Asset Growth" (2014) *Global Investor*, Issue 278, May, p. 373. Webb, D.C. (2007). "Sponsoring Company Finance, Investment and Pension Plan Funding", *Economic Journal*, Vol. 117, April, p. 738-760.

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