

退休金負債與增資對企業退休金計畫選擇之影響

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I.中文摘要

企業退休金計畫依給付方式的不同，可以分為確定給付制(Defined Benefit Plans) 與確定提撥制 (Defined Contribution Plans)。這兩種退休金計畫在承擔退休所得的風險上也各有優劣不同。過去的二十年中，許多研究發現美國有越來越多的公司採用確定提撥制的退休金制度。雖然，絕大多數的研究同意這樣的趨勢，但是對於這個趨勢的成因卻始終沒有定論。過去文獻研究這個趨勢的成因時主要著重在勞動經濟誘因、市場結構與公司財務考量等因素，卻忽略了退休金負債成本與公司增資機會的影響。公司若無法透過適當管道增資，龐大的確定給付退休金負債成本將使公司面臨破產的命運，為了繼續生存，公司可能會決定捨棄原本的確定給付制而改採確定提撥制，因此上市公司與非上市公司在退休金計畫選擇的行為上也可能不同。為了克服過去文獻的缺點，本研究蒐集 1985 與 1996 的企業退休金資料 (IRS Form 5500 data) 與公司財務資料 (Compustat data)，並分為上市與非上市公司兩個組群，追蹤此兩年間上市與非上市公司對退休金計畫選擇的變化，並且利用 Logistic Regression 模型分析公司在退休金計畫選擇的改變之影響因素有何不同。本研究之實證結果補充 Peterson (1994) 提出財務因素對退休金計畫選擇之影響的研究，我們發現上市公司由於籌資較容易，因此較可能繼續提供確定給付制。相對的，非上市公司由於籌資較不容易，在退休金成本逐漸增加的壓力下，則較容易終止將原有的確定給付制而轉成提供確定提撥制。

關鍵詞：退休金計畫、確定給付制、確定提撥制、退休金負債成本、增資機會、

上市公司

I. Abstract

Over the past twenty years the trend in private employer pension system has been moving away from traditional defined benefit plans and toward defined contribution plans. However, when analyzing the causes of the pension trend, previous literature emphasized more on how the changes in the pension benefits influence employee's income and how characteristics of pension plans serve as incentive contracts for employers, but overlooked the effects of pension liability costs and the access to the capital market. This paper examines whether the pension liability cost is an important factor in employer pension choice and whether the behavior of such decision differs between public trading firms and non-public trading firms. We find that the public trading firms have more accesses to raise new capitals, thus have higher probability to continually provide defined benefit plans. On the other hand, with limited accesses to raise new capitals non-publicly trading firms were more likely to terminate their existing defined benefit plans and switch to defined contribution plans.

Keyword: defined benefit plan, defined contribution plan, pension liability cost, access to the capital market, public trading firms.

II. Introduction

Over the last two decades, there have been tremendous changes in the private pension provision. The extant literature has reported that the private pension trend has been moving away from defined benefit(DB) plans and stampede toward defined contribution(DC) plans in the respect to both the changing shares of the number of plan and active participants (Clark and McDermed (1990); Clark, McDermed, and Trawick (1993); Gustman, Mitchell, and Steinmeier (1992); Ippolito (1985, 1986, 1995, and 1998); and Kruse (1995). Recent article (Wang and VerDerhei, 2001) also suggested that a growing segment of the U.S. population is relying on DC as their *primary* pension income source. Up to 1996, about 75 percent of firms offered DC plans as primary plans and overall about 50 percent of employer's pension asset in primary plans were allocated to DC plans. The main reasons for the trend toward DC plans have been attributed to the increased regulation of DB administrative costs, the shift in industry composition and employment, the increased publicity of 401(k) plans and the consideration of firm's financial cash flow. However, when analyzing the causes of the pension trend, previous literature emphasized more on how the changes in the pension benefits influence employee's income and how characteristics of pension plans serve as incentive contracts for employers, but overlook the effect of pension liability costs. For survival purpose, the financial burden of pension liability costs can be important factor to influence employers' pension choices.

Prior to 1980's, most employers may not fully recognize the financial burden of pension liability guaranteed under DB plans, and thus offer generous defined pension benefit to attract productive employees. However, during the last ten years, more and more firms realized that, in lights of investment risk and the longevity risk, DB plans could become a heavy financial burden or even a reason for bankruptcy and should be provided with cautiousness. Thus, the costs of pension liability could play at least as an important role as the benefit of pension plans to influence employers' pension choices. Petersen (1994) suggest that the firm's operating leverage and the cash flow could be important determinant factors to influence employers' pension choices. Failing to control such factor, as in the studies of Clark and McDermed (1990), Clark, McDermed, and Trawick (1993), Gustman and Steinmeier (1992), Ippolito (1995), and Kruse (1995) may lead to serious misrepresentation.

In this paper, we intend to examine whether pension liability cost is indeed a determinant factor for an employers to choose pension plans. The financial burden of DB plans dramatically hit liabilities of corporation after the issue of FASB 87. Moreover, after Employee Retirement Income Security Act (ERISA) in 1974, the accrued pension benefits were insured by Pension Benefit Guarantee Corporation (PBGC) up to certain limits. In addition, ERISA imposed minimum plan standards for participation, vesting, and retirement, and requirements for funding past-service liability. Since the passage of ERISA, a number of pieces of legislation further tightened the tax qualification standards, raised PBGC premium payments, required faster funding liabilities, and penalized employers for claiming excess assets of terminated defined benefit plans. The Tax Reform Act of 1986 (TRA86) imposed an excise tax of 10 percent on excess pension assets that revert to an employer upon termination of the pension plan. Subsequent legislation raised this tax to 20 percent, effective in 1990, and to 50 percent if the

employer does not transfer a portion of the excess assets to a replacement plan or increase benefits under the terminating plan. The Omnibus Budget Reconciliation Act (OBRA) of 1987 increased the basic PBGC premium rate from \$8.50 to \$16.00 per participant and added an additional variable premium, which depends on the plan's degree of under funding. It also shortened various amortization periods and restricted the tax deductibility of plan contributions to no more than 150 percent of the plan's termination liability. The net effect of these tax and regulatory changes has increased the pension liability cost as well as the administrative costs of defined benefit plans and discouraged employers from establishing or even encouraging them to terminate their defined benefit plans. Thus, DB plans become more and more expensive if employers need to accrue all the future pension liabilities.

In summary, the objective of this paper is to overcome the aforementioned problems and provide more precise evidence with regard to how employers change their pension choices. The focus of our paper is to examine whether the pension liability cost is an important factor in employer pension choice and whether the behavior of such decision differ between public trading firms and non-public trading firms. We first put together data on the firms that survived from 1985 to 1996 based on *Form 5500* from the Internal Revenue Service (IRS). We then focus on the firms whose primary pension plans are DB plans in 1985, and analyze whether their primary pension plans change in 1996. The empirical findings of our paper could compliment Petersen (1994) and previous research by examining how the pension choices be influenced by both the liability costs and the accesses to raise new capitals.

II. Testing Hypothesis

In this paper, we intend to examine the following two hypotheses. The first hypothesis is the higher pension liability cost of DB plans, the less likely for employers to offer DB plans. The rationale under the above hypothesis is similar to the basic economic theory: the higher the price of a good the lower the demand. Thus, we hypothesize that higher employer's pension liability costs in 1985, higher probability these enduring firms switched their primary pension choice to DC plans in 1996.

Furthermore, our second hypothesis is to examine whether the cost to the firms with accesses to capital market (public trading firms) is as important as to the firms without accesses to capital market (non-public trading firms). Obviously, if the firms are not able to raise new capitals to fund their pension liabilities, they may need to change their pension choices. If firms have accesses to raise new capitals, they may be able to convince shareholders to invest more money to offset pension liabilities, since DB plans could attract experienced works and eventually benefit the firms in the long run.

III. The Empirical Analysis

Based on *Form 5500* from the Internal Revenue Service (IRS), we first identify firms that sponsored primary DB plans with at least 100 participants in 1985 and then trace the changes of their pension choice in 1996. The sample in this paper only focus on the enduring firms who

offer DB plans as primary pension plans in 1985 and survive in 1996. A number of tax and regulatory changes during the early 1980s increased employer's costs for offering DB plans and thus encouraged employers to establish DC plans or to terminate their existing DB plans. We, therefore, specifically keep the pre-regulatory 1985 data. In addition, we use the primary code in IRS 5500 tapes to define each firm's primary plan. The primary code is attached to the 5500 tapes by the U.S. Department of Labor based on an algorithm designed to sort through multiple coverage in the same firm. If only one plan exists within an EIN (Employer Identification Number), it is labeled as the primary plan. Otherwise, a DB plan is considered primary if the number of participants covered by such a DB plan is greater than the numbers covered by other plans. On the other hand, a DC plan is considered primary if the number of participants covered by a DC plan is greater than the number covered by other plans. It should be noted that the observation unit in this paper is "firm level" instead of plan level since our focus is to examine the changes/switch of employer's choice in the primary plan.

Our sample is different from those used by previous research. Most papers (Clark and McDermid, 1990, 1993; Gustman and Steinmeier, 1992; Ippolito, 1995; and Kruse, 1995) used cross-sectional data to exam the choices of pension plans. Since the choices of pension plans in those papers could be either DB or DC, they can not directly control the cost of DB liabilities in the explanatory variables, because there is no cost of DB liabilities for the sample choosing DC plans. To overcome this barrier, we trace the change of pension choices of employers who offered primary DB plan through time. In our sample we investigate those firms offering DB plans as primary plans in 1985, and examine whether they changed their primary pension choices or not in 1996. By focusing on these enduring firms specifically, we could exam whether employers leave primary DB plans because of the cost of pension liabilities. In addition, to exam whether accesses to capital market could offset firms' cost pressure when making the decision of employer pension choices, we compare two samples: non-public trading firms on *Form 5500* and non-public trading firms. To collect the sample of firms traded publicly, we use EIN (Employer Identification Number) on *Form 5500* to merge with data of COMPUSTAT.

To further analyze the determinant factors of employers' pension choices, the logistic regression models constructed are specified as:

$$\text{Pr } ob(y_i = 1) = \beta'x_i + u_i, \quad (1)$$

where $y_i = 1$, if firm i chooses the DC plan; $y_i = 0$, if firm i chooses the DB plan.

x_i is a vector of explanatory variables,

u_i is the random disturbance, and

β_j are the plan-specific parameters to be estimated.

The probability density function in the logistic regression is the extreme value function. The explanatory variables are described in detail as follows:

Firm Level Variables: The important variables include firm size, employer pension liability cost and dummies for unionized firm and industry.

Labor Market Variables: These variables include: the mean of worker age (meanage), and variance of worker age, percent unionized, percent professional, percent managers, percentage in sales, percent in clerical, percent in service.

Firm's Financial Variables: Several financial variables are included in our study. These variables are: firm's cash flow variability, intangible asset, the proportion of the firm's fixed assets, firm's investment opportunity, corporation's earnings, debt-equity ratio and amount of tax loss carry.

IV. Conclusion

This paper examines whether the pension liability cost is an important factor in employer pension choice and whether the behavior of such decision differs between public trading firms and non-public trading firms. Using *Form 5500* data from Internal Revenue Service in 1985 and 1996, we analyze the firms who offer DB primary pension plans in 1985, and trace whether they changed their primary pension plans in 1996. Our empirical findings provide more detail information to supplement Petersen (1994) and previous research by examining the effects of pension liability cost which was over look by the literature in analyzing the cause of pension trend. In general, the results confirm our two testing hypotheses. We find that, for enduring firms who survival from 1985 to 1996, the employer's pension liability is a significant factor for non-public trading firms whereas is not a significant factor for public trading firms to switch from DB to DC plans. Our result implies that the public trading firms may have more accesses to raise new capitals to easy the burden on pension liabilities, thus they have higher probability to continually provide DB plans. On the other hand, with the limited accesses to raise new capitals non-publicly trading firms may be forced to terminate their existing DB plans and switch to DC plans.

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