EXAMINING THE ACCOUNTING FOR DEFINED BENEFIT PENSION COSTS

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ABSTRACT

Accounting for defined benefit plans represents a complex, cumbersome and critical component of financial reporting for United States companies. This study examines how and, more importantly, why current accounting standards for defined pension costs evolved and how we believe they will soon evolve. We thus critically examine all significant U.S. accounting standards related to defined benefit plans enacted since 1948, analyzed to grasp the specific rules and their underlying motivation and logic behind them.

After examining current US standards for accounting for defined benefit pensions, we discuss related international financial reporting standards [IFRS] in light of the global accounting convergence project. We then compare how 30 large US corporations now recognize their current defined benefit obligations to how they would recognized these obligations under IFRS, generally finding that they would report lower pension costs, and even some pension assets.

Keywords: History of Pensions; Accounting for Defined Benefit Pension Costs; ASC 715

INTRODUCTION

The business and popular press have often discussed the country's problems with unfunded define benefit pension liabilities, and the resultant affects of company or municipality net income, cash flows and overall sustainability going forward—plus resultant effects on their current and future retirees. Defined benefit pension plans became popular during World War II, which limited salary increases. These plans then became prevalent, since employers often liked the idea of such costs not affecting their reported liabilities and expenses under U.S. generally accepted accounting principles [GAAP] for many years, while their workers often accepted lower wages in exchange for retirement security. Of course, workers generally assumed that their employees would keep such pension obligations, which has become problematical. This problem began when, in general, during World War II, the government forbade large salary increases, but not pension cost increases. Since then defined benefit pension funding issues have caused major private and public sector financial problems, e.g., in Detroit, Michigan (MacDonald et al. 2009), Stockton California, (SEC), General Motors (XXX) and United Airlines (XXX). Since such liabilities often represent a firm's largest liability, we examine how firms accounting for such liabilities since then, and discuss some future trends in this area.

OVERVIEW

What is a Defined Benefit Plan?

Pension plans are either defined contribution or defined benefit plans. The former types of plan involves employees and employers contributing to an independent fund, planning and hoping that the resultant investments will grow over time to provide employees' adequate retirement income. Employers promise employees no specific returns on such investments, and the employees as direct plan beneficiaries accept all risks involved with plan performance, with the Employee Retirement Income Security Act [ERISA] of 1974 insuring much of such these retirement benefits. Historically, this uncertainty has not been a long-term issue since such investments generally produce adequate returns. But retirees during times [such as we have today] of long-term stagnant or declining periods of depressed investment prices, often receive inadequate returns to live as they "expected," or the funds can even become depleted. Since

employers need only make the required plan contributions regardless of its performance, employees use increasing proportion of defined contribution plans, such as 401(k) plans.

Defined benefit plans require employers to contribute to independent investment funds, while guaranteeing employees a set of future cash inflows upon their retirement. No matter how well the plan does, no matter the state of the economy at the time of retirement, and no matter the employees' life spans, employers are liable for the full amounts promised. Companies must thus try to match amounts in the pension fund with amounts needed to meet retirement obligations. If funds have inadequate plan assets, employers must cover the difference from other resources. Companies assume most risks, although the employee risks that the employer will go out of business or otherwise fail to meet promised retirement obligations. But the pension benefit guaranty corporation [PBGA], a government entity that insures some defined benefit benefits that are lost when a private plan fails, mitigates that risk. Defined benefit plans have seen a significant decline in the private sector as the number of employees covered has fallen from 38 to 20 percent between 1980 and 2008 (Butruca, Iams, Smith, & Toder, 2009).

As an independent company entity, companies must account separately for all defined benefit plans; but, since employers guarantee all plan shortfalls, they should recognize a related liability (or an asset in case of overfunding) and an expense on the income statement. Accounting for such items has long caused much discussion and controversy.

Accounting for Defined Benefit Plans

Employers can use one of two methods to determine their required recognizing net assets or liabilities: the fair value of plan assets and the projected benefit obligation. Generally Accepted Accounting Principles [GAAP] does not usually allow netting assets against liabilities; but, since plan assets must be used solely to fulfill the liability, this procedure was acceptable. Plan asset valuation is the simpler of the two because it consists of predominantly employer contributions to the plan and the return on the investments that the plan earns, less the benefits paid to retirees—all of which are easily determined.

Calculating such obligations is a complex process, often requiring actuarial help. First, service costs represent “the actuarial present value of benefits attributed by the pension benefit formula to services rendered by employees during that period” (FASB 715-30-20). Companies should match recognized expenses in the same period as the resultant, produced revenues; and because retirement benefits are a form of compensation, they should be recognized in the same period as other employee costs. Computing service costs involves estimating the amount of promised future retirement obligations owed to employees related to this period’s productivity and discounting that amount from the estimated retirement age to today.

Next, employers should recognize implicit interest expense to help measure the present value of the service costs, using any reasonable interest that reflects “the rates that could effectively settle pension benefits (FASB 715-30-35-43). Employer should thus examine rates on present annuity contracts or high grade fixed-income investments. Except for changes in the pension plan, the only way to reduce a pension obligation is by paying out benefits to retirees.

Companies measure pension expenses to recognize their economic costs for having a defined benefit plan, which usually constitutes the same parts as the pension asset/liability. Pension expenses equal the service cost plus the interest expense less the return on plan assets attributable to the period of the financial statements. Prior service costs and actuarial gains and losses are also systematically recognized in pension costs over periods of time. Explaining pension liabilities and expenses are very basic, and accounting rule changes over the past 60 years have increased its importance and complexity. Table 1 summarizes the evolution of US GAAP and IFRS pension accounting and Table 2 highlights how U.S. GAAP and International Financial Reporting Standards [IFRS] account for Defined Benefit Pension plans.

HISTORY OF US PENSION PLAN ACCOUNTING

Accounting Research Bulletins

From 1938 to 1959, the AICPA’s Committee on Accounting Procedure (CAP) set U.S Accounting Research Bulletins (ARB), as the U.S.’s first standard setter. For much of this time, accounting for defined benefit pensions was not uniform; companies could set

their own methodologies. In 1948, the CAP issued ARB No. 36 "Pension Plans - Accounting for Annuity Costs Based on Past Services," as the first significant rule to address benefit plans. It stated, "Costs of annuities based on past services should be allocated to current and future periods." Employers starting or amending defined benefit plans usually credits employees based on their already preformed services, but a question arises on whether they should recognize such prior services as a prior or future [capitalized] expense. The CAP rules that since prior service costs would benefit companies going forward in the form of improved employee morale and retention, they should recognize these costs in income over the course of the current and future periods.

In 1956, the CAP released ARB No. 47 "Accounting for Costs of Pension Plans" that recommended using full accrual accounting, rather than the prevalent cash basis to measure pension expenses. Thus, expenses recognized on income statements were a function of an employer's funding policy—not their economic cost. Responsible employers contributed adequately to their defined benefit pension plan and recognized their related, matched expenses.

ARB 47 (Par. 7) required recognizing pension liabilities on balance sheets equal to the present value of vested employee benefits less value of the assets pledged to the pension. But, the Standard provided few specifics on how to compute such liabilities. Actuarial methods were not at all limited, and the term "vested" remained was not clearly defined. ARB 47 also called for increased disclosures. Paragraph 8 states:

> When a plan involving material costs is adopted, there should be a footnote to the financial statements for the year in which this occurs, stating the important features for the year in which this occurs, stating the important features of the plan, the proposed method of funding or paying, the estimated annual charge to operations, and the basis on which such annual charge is determined. When an existing plan is amended to a material extent, there should be similar disclosure of the pertinent features of the amendment. When there is a change in the accounting procedure which materially affects the results of operations, there should be appropriate indication thereof.

Requiring employers to provide supplemental information about pension plan initiations or significant changes led to many future accounting standards and disclosure requirements.

Accounting Principles Board Opinion

Despite passage of ARB 36 and 47, little uniformity in recognizing such expenses continued, leading to the issuance of APB Opinion No. 8 (par. 3-4). In 1959, the AICPA formed the Accounting Principles Board [APB] to help standardize accounting practices. APB Opinion No. 8 “Accounting for the Cost of Pension Plans,” (1966) had its first paragraph discuss the key problems with accounting for defined benefit pension plans:

> Pension plans have developed in an environment characterized by a complex array of social concepts and pressures, legal considerations, actuarial techniques, income tax laws and regulations, business philosophies, and accounting concepts and practices. Each plan reflects the interaction of the environment with the interests of the persons concerned with its design, interpretation and operation. From these factors have resulted widely divergent practices in accounting for the cost of pension plans.

It (par. 16) emphasized that “accounting for pension cost should not be discretionary.” Despite ARB No. 47, accounting for defined benefit plans was still the product of a many company-controlled factors, e.g., that were controlled by the company, like funding policy or actuarial technique. APB Opinion No. 8 sought to make this process much more objective.

The Standard’s appendix describes some acceptable methods proper actuarial techniques, but companies could use any appropriate “rational and systematic” method accounting policies for their specific plans. The Opinion required companies to recognize over current and future periods actuarial gains and losses, which occurs when estimates of pension expenses and liabilities differ from actual events. Firms should not recognize immediately into income effects of changing estimated mortality rates, retirement ages, employee turnover, future salaries and other factors, which should not be immediately recognized in income, and instead be amortized “in a manner that reflects the long-range nature of pension cost” (par. 30). Thus, because defined benefit plans are long term liabilities, mere incidental changes in their estimated values should not significantly “swing” annual income. While setting no uniform

amortization period for this process, the Board recommended companies use 10 to 20 year amortization periods.

While allowing firms flexibility to determine their accounting policy, the Opinion (par. 17) sets minimum and maximum amounts of recognized, annual pension expenses. Setting minimums avoid the problem of companies not recognizing appropriate amounts for pension costs, and maximum help to reduce reported volatility of such pension costs.

Defined benefit plans should consider resultant measured precision and stability of their reported costs, which led to the above minimum and maximum limits. Despite the matching principle requiring entities to recognize gains or losses in their incurred periods, the 1960s and 1970s saw pension plans often representing large portions of company liabilities. Slight changes to plan assumptions could impact greatly financial statement balances. Companies could have a large pension expense or asset in one year and a small or nonexistent expense or liability the following year. While these changes often had no net long-term effects, investors are often sensitive to significant fluctuations in net income and large swings can impair the value of a company's stock, and deter creditors from providing them with new funds. Banks often require firms to maintain minimum financial ratios (e.g., times interest earned), and violators could have their loans called in prematurely. Thus, to avoid such situations and to minimize volatility, the Board's amortize of actuarial gains and losses policies limited pension expenses served as a compromise between the conflicting goals of precision and stability within financial statements.

APB Opinion 8 also required recognizing immediately interest on outstanding pension liabilities as a component of pension expense, and "hiding" no costs within retained earnings (which is a balance sheet account representing cumulative earnings)—recognizing them directly on the income statement. Thus, all costs relating to the pension would eventually impact net income, either directly or over a period of time through amortization.

Regarding the pension liability account, the Opinion (par. 18) required companies to recognize as a liability legal obligations for pension costs, beyond what ARB No. 47 required. The rule simply confirmed that liabilities should include all legal obligations.

APB Opinion No. 8 requires such financial statement disclosures as:

- "A statement that such plans exist, identifying or describing the employee groups covered;"
- "A statement of the company's accounting and funding policies;"
- "The provision for pension cost for the period;"
- "The excess, if any, of the actuarially computed value of vested benefits over the total of the pension fund and any balance-sheet pension accruals, less any pension prepayments or deferred charges;" and
- "Nature and effect of significant matters affecting comparability for all periods presented, such as changes in accounting methods, changes in circumstances, or adoption or amendment of a plan;"

Despite APB Opinion no. 8 seeking to minimize pension disclosures variations and report fully their obligations, companies often *hid* many such liabilities, made unrealistic assumptions, and otherwise failed to report their underlying conditions—often resulting in inconsistent reporting among companies and providing inadequate information to investors and creditors.

ERISA and FASB Interpretation No. 3

ERISA requires companies to maintain minimal funding levels for their defined benefit plans, but has few accounting effects. Thus, FASB interpretation No. 3, "Accounting for the Cost of Pension Plans Subject to the Employee Retirement Income Security Act of 1974," stressed that the new law required no significant accounting changes were necessary.

SFAS No. 36

Criticism of the APB led to the Wheat Committee (1971) studying the process of creating accounting rules and regulations. It recommended that a new Financial Accounting Standards Board (FASB) issue authoritative *Statements of Financial Accounting Standards* (SFAS).

FAS No. 36, "Disclosure of Pension Information," was passed in 1980 and amended APB Opinion No. 8. Intended as only an interim standard until the FASB completed studying defined benefit pensions, it introduced new and significant disclosure requirements.

Paragraph 8 of the standard requires companies disclose the:

- Actuarial present value of vested accumulated plan benefits;
- Actuarial present value of nonvested accumulated plan benefits;
- Pans' net assets available for benefits;
- Assumed rates of return used to determine the actuarial present values of vested and nonvested accumulated plan benefits; and
- Date as of which the benefit information was determined

Until then, companies reported the net of the pension liability and the fair value of the plan's assets on the balance sheet as one line item with no further explanation. FAS No. 36 required disclosing separately obligations and plan assets—to give financial statement users much new information about pension liabilities and commitments. For example, if one company has a $100K benefit obligation and plan assets of $50K while another company had a $50 million obligation and $49.95 million in plan assets, both would report $50K in liabilities But the latter company seems much better-funded than the former one. Disclosing both components provides key information about both companies.

SFAS no. 36 also elaborated on the critical difference between vested and nonvested benefit obligations. Many companies required pension beneficiaries to work for a minimum number of years to receive their full employer-donated pension benefits, while unvested benefits are contingent upon employees working until such benefits become vested (e.g., five-ten years).

Companies next must disclose the rate used to determine the present value of pension benefits, allowing them to use any reasonable rates—which some companies have abused. While some businesses use using overly generous interest rates, higher discount rates lower the present value of the liability and the recorded financial statement liability. In any event such disclosures highlight the assumptions used for pension calculations.

Also disclosing the date that the companies determined key pension information helps to clarify to users when obligations and assets were valued. Also, this SFAS allowed companies to use different financial statement and pension plan year-end periods, This differences could *mask*, for example, major declines in asset values (i.e. from a sharp

decline in the stock market) and major shifts in interest rates occurring between the valuation and year-end dates.

SFAS No. 87

Nearly four decades after ARB No. 36, the profession saw many major differences in accounting for defined benefit plans. SFAS No. 87*, Employers' Accounting for Pensions*, noted

> After 1966, the importance of information about pensions grew with increases in the number of plans and amounts of pension assets and obligations. There were significant changes in both the legal environment (for example, the enactment of ERISA) and the economic environment (for example, higher inflation and interest rates). Critics of prior accounting requirements, including users of financial statements, became aware that reported pension cost was not comparable from one company to another and often was not consistent from period to period for the same company. They also became aware that significant pension-related obligations and assets were not recognized in financial statements. (FAS 87 Summary).

While SFAS No. 36 (1985) was intended to be a temporary standard until the culmination of a major project on pension accounting, resulting in SFAS No. 87, "Employers' Accounting for Pensions," to supersede SFAS 36 and APB Opinion No. 8 and its associated interpretations and amendments. SFAS No. 87 is a major pension-related accounting standard. A comprehensive standard has been in need for decades, as the summary of FAS No. 87 states:

> Measuring cost and reporting liabilities resulting from defined benefit pension plans have been sources of accounting controversy for many years. Both the Committee on Accounting Procedure, in 1956, and the Accounting Principles Board (APB), in 1966, concluded that improvements in pension accounting were necessary beyond what was considered practical at those times.

SFAS 87 (par. 20) required these disclosures of pension cost components:

- Service cost;
- Interest cost;
- Actual return on plan assets;
- Amortization of unrecognized prior service cost;
- "Gain or loss (including the effects of changes in assumptions);"

- "Amortization of the unrecognized net obligation or unrecognized net asset existing at the date of initial application of this statement;"

Service cost is as they were previously; interest cost is equal to the interest on the projected benefit obligation (to be defined later) (Par. 22). Amortization of prior service costs (PSC) was slightly revised to require companies to amortize PSC over active employees' expected service periods (if most participants are inactive employees, amortization should be based on the participants life expectancy). While employers still could amortize PSC over shorter periods of time, the new maximum amount reduced such employers' flexibility (par. 24-26).

The gain or loss component is a new concept requiring companies to need not recognize actuarial gains or losses immediately, but could spread out the gains and losses over reasonable and consistent periods of time, recognizing a problem of amortizing huge balances of unrecorded income arising mainly from amendments. Thus, SFAS 87 required amortizing amounts of unrecognized gain or loss that exceeds 10 percent of the greater of the projected benefit obligation or fair value of plan assets over active employees' expected, remaining service lives (par. 32). This process (i.e., corridor approach) requires also requires amortizing amounts outside this 20 percent corridor (10 percent for unrecognized losses to 10 percent for unrecognized gains). But companies can still use any consistent and reasonable amortization method.

The concept of expected and actual return on plan assets also affects such gains or losses. The "expected long-term rate of return on plan assets" (par. 30) and actual return is the change in plan assets' fair value from the start to the end of the period, adjusted for contributions to and payments from the fund (par. 23). During times of strong economic growth, actual returns tend to exceed expected returns, during periods of recessionary periods. Since including actual returns in pension costs could income statement increased volatility, companies could delay recognizing differences between expected and actual return (par. 121)—with stronger periods helping to offset weaker ones. However, this move towards stability has some. Duangploy & Pence (2007) discuss SBC Communications, who expected positive return of $3.4 billion but actually lost $3.4 billion, resulted in a $6.8 billion overstatement of income. Although this is an

extreme example, it illustrates the risks involved with trying to maintain stability on the balance sheet.

Both the corridor and the delayed recognition of the difference between actual and expected gains/losses exemplify the accounting profession seeking to balance financial statement precision and stability. The corridor minimizes firms having large amounts of unrecognized gains or losses, potentially distorting income. Concurrently, standards require the use of expected returns over actual returns to stabilize the year to year differences in pension costs.

SFAS 87 also created such terms as vested benefit obligation (VBO), accumulated benefit obligation (ABO) and projected benefit obligation (PBO). VBO is the actuarial present value of vested benefits assuming current salaries, and ABO is the actuarial present value of pension benefits (both vested and nonvested) also assuming current salaries. The PBO is the present value of future benefits with the assumption of projected future salaries (Par. 17-18).

SFAS 87 limited company flexibility of key pension measurements and disclosures, e.g., interest cost component of pension expense focuses on beginning PBO, which, in turn, represents a key balance to help calculate the corridor for amortizing unrecognized gains and losses.

Paragraph 36 of the standard required companies to recognize a minimum liability on its balance sheet "that is at least equal to the unfunded accumulated benefit obligation" which is determined by taking the ABO and subtracting the fair value of plan assets. This is a significant difference from past standards that required only a liability that reflected a legal obligation as opposed to one using accrual accounting like the accumulated benefit obligation. The final accounting change was that the date of which the benefit obligation and plan assets could be evaluated at had to be within the 3 months prior to the date of the balance sheet (par. 52).

SFAS 87 made pension disclosures extensive. Paragraph 54 lays out the following information that companies need in their financial statements:

- "A description of the plan including employee groups covered, type of benefit formula, funding policy, type of assets held, and significant nonbenefit liabilities"

- The pension expense for the year showing separately these components:
    - Service cost;
    - Interest cost;
    - Actual return on assets; and
    - Net total of other components
- A reconciliation of the funded status of the plan including the following:
    - The fair of plan assets;
    - The projected benefit obligation, the accumulated benefit obligation, and the vested benefit obligation;
    - Unrecognized prior service cost; and
    - Unrecognized gains or losses.
- The discount rate and rate of compensation increase assumed in calculating the PBO and expected return on plan assets
- "The amounts and types of securities of the employer and related parties included in plan assets"

The standard requires aggregating all employer overfunded and underfunded multiple plans, but over- and under-funded plans cannot be combined because the assets in one plan cannot be used to meet the obligation in another (Par. 56).

SFAS 88 also released in December of 1985 complements SFAS 87, applied when an employer terminates a pension plan, immediately recognizing all unrecognized gains or losses. Footnote disclosures should also describe key nature of events(s) and amounts of gain or loss recognized (Par. 17).. Thus, companies did eliminate pensions without measuring and disclosing their income statement affects.

SFAS No. 132

SFAS No. 132, "Employers' Disclosures about Pensions and Other Postretirement Benefits," (1998) did not change any of the accounting procedures for defined benefit plans but amended disclosure requirements of SFAS 87 and SFAS 88. Paragraph 2 of the standard explains the purpose of the standard (emphasis added): Although current

> [d]isclosures requirements for pensions and other postretirement benefits are extensive, many users of financial statements told the Board in their responses to the Prospectus that the *information provided only partly met their needs*. Most of those users wanted information that would assist them in (a) evaluating the employer's prospects for future cash flows, (b) analyzing the quality of currently reported net income, and (c) estimating future reported net income. The Board concluded that disclosures about pensions and other postretirement benefits could be improved to provide information that is *more comparable, understandable, and concise* and that would better serve users' needs.

As discussed above detailed pension disclosure requirements existing prior to SFAS 132 lacked some requested financial statement user information. Also the new Standard [par. 5] laid out the following, even more extensive list of defined benefit plan disclosures:

- Reconciling beginning and ending balances of the projected benefit obligation;
- Reconciling beginning and ending balances of plan assets" fair value;
- Amounts of net periodic benefit cost recognized, showing separately period service cost component, interest cost component, expected return on plan assets for the period, amortization of unrecognized transition obligation or transition asset, the amount of recognized gains and losses, service cost recognized, and the amount of gain or loss recognized due to a settlement or curtailment.
- Any alternative amortization method used to amortize prior service amounts or unrecognized net gains and losses.
- Substantive commitments used to calculate accounting for the benefit obligation.
- Explain significant change in the benefit obligation or plan assets not otherwise apparent in the other disclosures required by this Statement.

While SFAS 87 merely required disclosing the accumulated benefit obligation and the plan assets' fair value, SFAS 132 also required further reconciling both accounts beginning and ending balances. Thus, employers should show all items that impacted that period's obligation and plan assets. This would provide even more transparency of

how the net funded status of the plan is determined. The breakdown of the periodic pension cost was something also introduced in SFAS 87, but the new standard includes more components that must be separately disclosed.

The final three points help reveal other important key pension plan information. Disclosing alternative methods used for amortizations help users make inter-company comparisons. Disclosing "substantive commitment" used to determine benefit obligations adds insight on future pension plan changes.

In a move contrary to the general trend of the last few standards, paragraph 8 of the standard reduced the number of disclosures required for nonpublic companies. However, public companies had to comply with all of the above disclosure requirements, and it should also be noted that these requirements were required for all periods included in the financial statements. This meant the income statement related disclosures had to be displayed for each of the past 3 periods and balance sheet disclosures had to be presented for the prior two periods.

SFAS 132R

Instead of releasing a new standard to address pension disclosures, in 2003 the FASB released a revised version of SFAS 132 that does not address accounting for pensions but adds to new, required footnote disclosures. Its summary shows the new Standard's justification:

> This Statement was developed in response to concerns expressed by users of financial statements about their need for more information about pension plan assets, obligations, benefit payments, contributions, and net benefit cost. Users of financial statements cited the significance of pensions for many entities and the need for more information about economic resources and obligations related to pension plans as reasons for requesting this additional information.

Despite much information given by SFAS 87, SFAS 88, and SFAS 132, users wanted more information. SFAS 132R (par. 5) lists 18 required pension footnote disclosures, and even some of those are broken down into further requirements. Most of these are just restatements of what past standards required, but listed here are the newest disclosures introduced:

- "For each major category of plan assets, which shall include, but is not limited to, **equity securities, debt securities,** real estate, and all other assets, the percentage of the fair value of total plan assets held as of the measurement date used for each statement of financial position presented"
- "A narrative description of investment policies and strategies, including target allocation percentages or range of percentages for each major category of plan assets…and other factors that are pertinent to an understanding of the policies or strategies such as investment goals, risk management practices, permitted and prohibited investments"
- "A narrative description of the basis used to determine the overall expected long-term rate-of-return-on-assets assumption"
- "Disclosure of additional asset categories and additional information about specific assets within a category…if that information is expected to be useful in understanding the risks associated with each asset category and the overall expected long-term rate of return"
- The accumulated benefit obligation
- "The benefits expected to be paid in each of the next five fiscal years, and the aggregate for the five fiscal years thereafter"
- "The employer's best estimate…of contributions expected to be paid to the plan during the next fiscal year"
- "In a tabular format, the assumptions used to determine the benefit obligation and the assumptions used to determine net benefit cost"

The first four points relate to plan assets. The first one requires employers to break down different types of assets that make up the fund in order to help users understand the pension's assets' "exposure to market risk and potential cash flow demands (Par. A12). In other words, users can see the plan's asset concentration to help assess this type of risk. Companies also had to describe the investment strategy of the pension fund, again helping assess these types of risks. They also had to explain how they determined expected returns on assets.

The fifth item listed is disclosing the accumulated benefit obligation, which until then was required only if it exceeded plan assets and thus resulted in a minimum balance sheet liability. As paragraph 31 of appendix A of the standard explains, many financial statement users wanted to know just how close the companies were to recognizing a liability.

The next two requirements help users understand the cash flow related to the pension obligation over the next five years. SFAS 132R requires employers to disclose how much they expect to pay out in benefits in the next five years and the combined amount of benefits they expect to pay over the five years after that. They are also required to report their estimate of how much to expect to contribute to the plan in the next year. Financial statement users will now be able to better judge just how much demand will be placed on the employers' pension plans in the near future. For example, if two companies report the same pension liability, but one was around for 50 years and had many employees about to retire while the other is relatively new and has a young workforce. Though both may have the same obligation on the books, the latter company does not have to worry about paying out benefits any time soon. However, the older company will be responsible for any benefits that must be paid out that cannot be met by the plan assets. That company is at a greater risk of cash flow problems. Therefore, disclosing the estimated payments to retirees over the next five years and the estimated contributions to the plan in the next year help financial statement users understand the solvency of the plan in the near future.

The final point was required for prior disclosures, but FAS 132R demands presenting it more clearly. Before then, companies could bury the interest rate assumptions used in paragraphs within the footnotes making it a burden for users to find them. Requiring that assumptions used in determining the benefit obligation and pension expense be displayed in a table made it easier for users to find the information and made comparisons between companies simpler (Par. A36).

FAS 158

SFAS 158, "Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans," was approved in September of 2006, whose rationale appears below:

> The Board issued this Statement to address concerns that prior standards on employers' accounting for defined benefit postretirement plans failed to communicate the funded status of those plans in a complete and understandable way…Prior accounting standards allowed an employer to recognize in its statement of financial position an asset or liability arising from a defined benefit postretirement plan, which almost always differed from the plan's overfunded or underfunded status. (FAS 158 Summary).

The Standard contained two key accounting changes. First, companies should recognize a pension asset or liability in an amount equal to the difference in the fair value of plan assets and the *projected* benefit obligation (Par. 4). This differed from prior standards that required only a minimum liability equal to the excess of the accumulated benefit obligation over the fair value of plan assets. The Board believed that the PBO "was the most relevant measure of the pension obligation" (Par. B22), a view already established back in SFAS 87. But the ABO was the obligation used when computing the required minimum liability. By requiring using the projected benefit obligation, the balance sheet will better represent the true funded status of the defined benefit fund. SFAS 158 also requires that all overfunded plans be combined and all underfunded plans be combined and recognized as an asset and liability respectively on the balance sheet. Past standards merely allowed for the option for this aggregation.

The other major accounting change was evaluating plan assets and benefit obligation at the balance sheet date. This differs from past rules that let employers to use any day within three months prior to that date. As Appendix B of the standard explains, many believed that requiring measurements as of the balance sheet date was too costly since some assets did not have active markets that easily determined their value. But the Board argued that requiring use of a single date reduced complexity, especially if significant changes in the plan's assets or obligation occur between valuation date and year-end, in which cases such effects would not be recognized in the financial statements until the next year (Par. B55). Using a single date would facilitate

comparisons between companies, since differences in valuation dates would require users to adjust for themselves the effect of changes in interest rates or asset values.

The following is the list of disclosures required by paragraph 7 of SFAS 158; the:

- Amount recognized in OCI (an equity account, it does not affect the income statement);
- Amount of OCI recognized on the income statement;
- Amount of accumulated OCI still unrecognized in income;
- Amount in accumulated other comprehensive income [OCI] expected to be recognized in next year's income; and
- Value of any plan assets that reverted to the business during the next year

The first four items deal with OCI. The Board explains in appendix B of the standard that:

> Items that are initially recognized in OCI. I.e., gains or losses and prior service costs or credits from plan amendments arising during the period and amortization of gains or losses, prior service costs or credits, and the transition asset or obligation for the period should be disclosed to provide information about the nature of the items affecting the employer's financial statements. (Par. B62).

The Board understood that OCI will be recognized in income eventually, whose disclosures can help users see types of impact on future period's income statements. The last item listed requires disclosing all plan assets that will return to the employer in the next year, since financial statement users to understand that not all of the assets presently in the fund will be used to pay retiree benefits. It also serves as a check on the company to make sure that it is not taking money out of the fund for non-pension related expenses.

FASB Codification 715-20

In 2009, the FASB launched a project, known as the Codification, to reclassify all of US GAAP into a single source that organizes related accounting standards together. The accounting rules that govern defined benefit plans are found in section 715-20 (Compensation – Retirement Benefits – Defined Benefit Plans).

IAS 19

While the FASB set U.S. GAAP, the International Accounting Standards Board (IASB) sets IFRS. IAS 19 sets forth accounting for employee benefits under IFRS, which similar to some Key SFAS account for and disclose defined benefit plan information. Major differences between the two standards are laid out in the Table 2 created by E & Y (Ernst & Young, 2010):

As highlighted in Table 2, minor differences exist between actuarial method, plan asset valuation, amortization of deferred actuarial gains or losses, and gains or losses on settlements and curtailments between both systems. The first difference is in treating unrecognized actuarial gains or losses, which under GAAP are amortized over a period of time so that they eventually are recognized on the income statement. IFRS states that if an amount is immediately recognized in OCI, it can never be moved to the income statement, since the IASB has not agreed to an acceptable method of income recognition that can be uniformly applied across various companies (IAS 19 BC99). Instead of prescribing one method that would not be appropriate for all entities or allow for a variety of methods that diminishes comparability and consistency across firms, IFRS just disallows the recognition of amounts in OCI.

The second difference between US GAAP and IFRS is treating prior service costs. Under US GAAP, prior service costs are expensed over the employees' expected lives while per IFRS, recognize immediately vested employees' prior service costs and those of unvested employees are amortized over the average time it takes for the unvested employees to become vested.

The third difference between US GAAP and IFRS is recognizing pension asset and liability. GAAP defines the liability as the PBO less the fair value of plan assets. IFRS defines the liability also as the PBO minus plan assets, but also subtracts unrecognized actuarial losses and prior service costs.

One last difference between US GAAP and IFRS is that the IASB has an asset ceiling on the potential pension asset on the balance sheet. To prevent firms from recognizing asset for amounts greater than the value of future benefits of the asset, IAS 19 defines

the asset ceiling as “the present value of any economic benefits available in the form of refunds from the plan or reductions in future contributions to the plan” (Par. 8).

2011 Amendments

In June 2011, IAS 19 was amended in three ways, effective on January 1, 2013. One is that all actuarial gains and losses must be recognized immediately in OCI. Firm could previously recognize these gains and losses in either the income statement or in OCI. Next, firms must recognize in income all prior vested and non-vested service costs in income as opposed to just the vested benefits. Finally, the revised standard eliminated the corridor method and required immediate recognition of income in the income statement or OCI.

Convergence

Recent history has seen a rapid growth in globalization with firms doing business in many different countries. This means that multinational companies must follow different accounting standards making it more complicated and more expensive to comply with appropriate accounting regulations. To address this, the FASB and the IASB have undertaken a major convergence project to help unify world-wide accounting standards so the companies do not have to be burdened by excessive accounting costs. Discussion and debate on how the accounting rules for defined benefit plans will be handled is still on going.

SEC Rules

SEC File No. S7-13-07 allows foreign entities to file with the SEC under IFRS without reconciling their financial statements to US GAAP (which was required prior to March 4, 2008). In November 2008, the SEC released a proposed rule that suggested all US companies begin filing under IFRS in 2014. Currently, only US issuers who are in industries where IFRS are used most frequently can chose to follow IFRS in their SEC filings (SEC No. S7-27-08)

ANALYSIS

Hypothesis

The tested hypothesis will examine whether transitioning to IFRS will significantly impact reported defined benefit pension asset or liability of companies that follow US GAAP.

Sample Collection

The study's original sample came from the 25-company sample used in a KPMG and the Financial Executives Research Foundation 2011 analysis of footnote disclosures, *Disclosure Overload and Complexity: Hidden in Plain Sight*. From their original list, three firms were eliminated due to lack of data availability, which we replaced by three of the biggest and most well established U.S. entities, as evidenced in their listing in the top 100 of the 2011 Fortune 500 list. This is consistent with the rest of the sample that is comprised of some of the largest U.S. firms. Figure 1 is a histogram that shows the spread across varying industries of the sample.

Data Collection and Method

The financial statements used had December 31, 2010 -September 30, 2011 balance sheet dates. Table 3 provides sampled firm' descriptive data on the, showing firms with an average total asset base of about $251 billion and corresponding liabilities of about $198 billion. Table 4 shows that significant differences existing in how U.S. GAAP and IFRS measure such liabilities.

To calculate the IFRS pension asset or liability, Ernst & Young provides an example where all of the unrecognized OCI (loss) related to the defined benefit was subtracted (added) to the pension item reported under US GAAP. The following two journal entries illustrate how a company converting to IFRS from US GAAP would account for this:

If OCI has a debit balance		
Pension Asset/Liability	XXX	
Other comprehensive income		XXX
If OCI has a credit balance		
Other comprehensive income	XXX	
Pension Asset/Liability		XXX

A company with a debit balance in OCI has unrecognized losses on its balance sheet. Converting to IFRS makes recognizing all such unrecognized losses, and the pension asset/liability will increase by that same amount. If a company has a credit OCI balance, it has unrecognized gains on the balance sheet, so when converting to IFRS, that amount is recognized and subtracted from the pension asset/liability.
To test this hypothesis, we compared sampled companies' pension assets or liabilities currently recognized under US GAAP to the calculated pension asset or liability under IFRS.

Results and Discussion

Table 3 displays median and mean results, showing a significant difference between US GAAP and IFRS ($p < 0.001$). Average reported defined benefit liabilities (assets) under US GAAP and IFRS were respectively $2.9 and ($4.8 billion). Thus balance sheets of companies with defined benefit pension plans saw a substantial reduction in liabilities or increase in assets.
In general, conversion to IFRS improved employers' financial statements, plus their debt-to-asset and other financial ratios, which could help them raise more investment capital; but, this improved, reported financial position arose from merely changing a reporting method, that would not affect net cash flows [besides income tax effects]. Since the status of the pension plan has not improved, uninformed financial statement users may reach improper conclusions.

CONCLUSION

We examined the history of US pension accounting and compared it to IFRS, consisting of comparing the pension asset or liability large US firms currently report under US GAAP using Ernst & Young's model. Both mean and median tests found significant differences between the amounts reported under each accounting standard. Entities with defined benefit plans that move from US GAAP to IFRS should therefore be aware of this impact on their balance sheets.

Some study limitations include that its sample contained only 25 large US corporations, impairing imputations to smaller companies and those with unclear balances of OCI. Future research in this area may consider examining a larger sample size of similar companies, companies with more data available relating to the other comprehensive income account, midsized and small entities, or companies that do not follow US GAAP.

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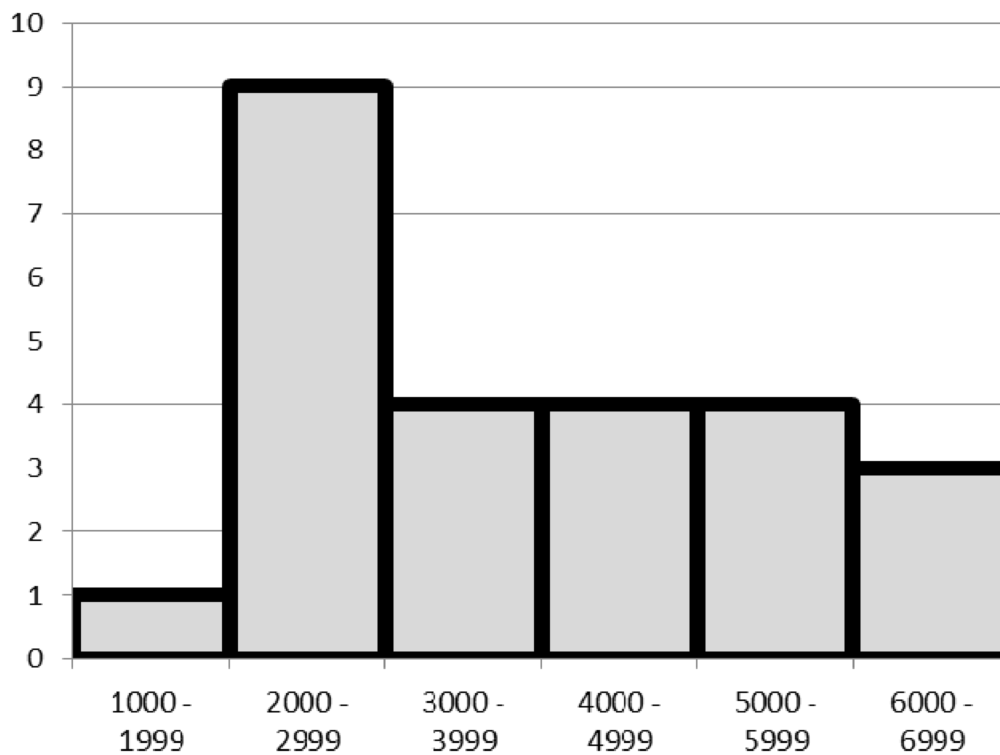
Figure 1: Frequency by SIC Group



1000 - 1999	Mining and Construction
2000 - 2999	Manufacturing - food, tobacco, textile, apparel, lumber, furniture, paper, printing, chemicals, and refining
3000 - 3999	Manufacturing - rubber, leather, stone, metal, machinery, electronic, transportation, controlling instruments, miscellaneious
4000 - 4999	Transportation, communications, electric, gas and sanitary
5000 - 5999	Retail trade
6000 - 6999	Finance, Insurance, and Real Estate

Table 1: Evolution of U.S. GAAP and IFRS Defined Benefit Pension Plan Accounting

Date	Evolution of Defined Benefit Pension under US GAAP	Date	Evolution of Defined Benefit Pension Plan Accounting under IFRS (IAS 19)
1948	ARB (U.S Accounting Research Bulletins) No. 36, "Pension Plans – Accounting for Annuity Costs Based on Past Service", the U.S.'s first significant rule to address benefit plans.	**1980**	Exposure Draft E 16, "Accounting for Retirement Benefits in Financial Statements of Employers".
1956	ARB No. 47 " Accounting for Costs of Pension Plans", recommended using full accrual accounting and required recognizing pension liabilities on balance sheets equal to the present value of vested employee benefits less value of the assets pledged to the pension.	**1983**	("old")IAS 19, "Accounting for Retirement Benefits in Financial Statements of Employers", was effective on 1 January 1985.
1966	Accounting Principles Board formed by AICPA – APB Opinion No. 8 "Accounting for the Cost of Pension Plans," discussed the key problems with accounting for defined benefit pension plans and sought to make the accounting process much more objective.	**1992**	Retirement Benefit Costs (E47) incorporated the changes to "old" IAS 19.
1974	FASB interpretation No. 3, "Accounting for the Cost of Pension Plans Subject to the Employee Retirement Income Security Act of 1974", required no significant accounting changes were necessary.	**1993**	IAS 19 Retirement Benefit Costs revised as part of the "comparability of Financial Statements". Revised IAS 19 was effective on 1 January 1995.
1980	FAS No. 36, "Disclosure of Pension Information," required more disclosures such as actuarial present value of vested and non-vested accumulated plan benefits, separate disclosure of obligation and plan assets, assume rate of return used to determine the present value of pension benefits, and date as of which the benefit information was determined.	**1996**	The IASC exposure draft (E54) for retirement benefits was intended to clarify how retirement benefit costs should be treated on the balance sheet.
1985	SFAS No. 87, "Employers' Accounting for pensions", superseded previous standards for employers' accounting for pensions and is a major pension-related accounting standard.	**1998**	("new") IAS 19 Employee Benefits outlined the accounting requirements for employee benefits, including short-term benefits (e.g. wages and salaries, annual leave), post-employment benefits such as retirement benefits, other long-term benefits (e.g. long service leave) and termination benefits. The standard established the principle that the cost of providing employee

			benefits should be recognized in the period in which the benefit is earned by the employee, and outlined how each category of employee benefits are measured, providing detailed guidance in particular about post-employment benefits. Limited revisions of IAS 19 were conducted in next three years.
1985	SFAS No. 88, "Employers' Accounting for Settlements and Curtailments of Defined Benefit Pension Plans and for Termination Benefits", is closely related to SFAS No. 88.	**2002**	"Asset Ceiling" amendment to IAS 19 Employee Benefits" was effective on 31 May 2002.
1998	SFAS No. 132, "Employers' Disclosures about Pensions and Other Postretirement Benefits," didn't change any of the accounting procedures for defined benefit plans but amended disclosure requirement of SFAS 87 and SFAS 88.	**2002**	Amendments to IAS 19.144-152 were proposed as part of the IASB's project on Share-based payment.
2003	SFAS No. 132 (R) didn't address accounting for pensions but required pension footnote disclosures.	**2004**	IAS 19.144-152 on equity compensation benefits were replaced by IFRS 2 Share-based payment. Exposure Draft of proposed amendments to IAS 19 about recognition of actuarial gains and losses was adopted on 29 April 2004.
2006	SFAS No. 158, "Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans," required an employer to recognize and measure the funded status of a benefit plan as of the date of its fiscal year, and recognize as a component of other comprehensive income, net of tax, the gains or losses and prior service costs or credits that arise during the period but are not recognized as components of net periodic benefit cost pursuant to FASB Statement No. 87.	**2008**	IAS 19 amended for "Annual Improvements to IFRSs 2007 with regard to negative past service costs and curtailments, was effective on 1 January 2009.
2009	The Codification superseded prior US GAAP and defined benefit pension plans were placed in ASC 715.	**2009**	Exposure Draft of proposed amendment to IAS 19 relating to discount rate was proposed on 20 August 2009. But Board decided not to finalize Exposure Draft on employee benefits discount rate on October 2009.
2011	ASU 2011-04 "Fair Value Measurements,"	**2010**	Exposure draft (ED) of proposed

	resulted in changes to wording used to describe fair value requirements and disclosures impacting ASC 715-20-50.		amendments to IAS 19 'Employee Benefits', would amend the accounting for defined benefit plans through which some employers provide long-term employee benefits, such as pensions and post-employment medical care. In defined benefit plans, employers bear the risk of increases in costs and of possible poor investment performance. The ED proposed improvements to the recognition, presentation, and disclosure of defined benefit plans. The ED didn't address measurement of defined benefit plans or the accounting for contribution-based benefit promises.
2011	ASU 2011-09 (ASC 715-80), "Compensation—Retirement Benefits—Multiemployer Plans," set forth additional disclosures for multiemployer plans.	2011	IAS 19 'Employee Benefits" was amended, effective January 1, 2013, to recognize all actuarial gains and losses immediately in other comprehensive income rather than income, recognize in income all vested and nonvested prior service costs vs. only vested prior service cost, and eliminate the corridor approach.

Table 2: US GAAP vs IFRS

	US GAAP	IFRS
Actuarial method used for defined benefit plans	Different methods are required dependent on the characteristics of the benefit calculation of the plan.	Projected unit credit method is required in all cases.
Valuation of defined benefit plan assets	Valued at "market-related" value (which is either fair value or a calculated value that smoothes the effect of short-term market fluctuations over five years) as of the balance sheet date.	Valued at fair value as of the balance sheet date.
Treatment of actuarial gains and losses for annual benefit cost	May be recognized in the income statement as they occur or deferred through either a corridor approach or other rational approach applied consistently from period to period	May be recognized in the income statement as they occur or deferred through a corridor approach or other rational approach applied consistently from period to period. Entities can elect to recognize immediately in other comprehensive income. Gains or losses immediately recognized in other comprehensive income are not subsequently recognized in the income statement.
Amortization of deferred actuarial gains and losses	Over the average remaining service period of active employees and over the remaining life expectancy of inactive employees.	Over the average remaining service period (that is, immediately for inactive employees).
Amortization of prior service costs	Over the future service lives of employees or, for inactive employees, over the remaining life expectancy of those participants.	Over the average remaining vesting period; immediate recognition if already vested.

Recognition of plan asset or liability in the balance sheet	Must recognize in balance sheet the over/under funded status as the difference between the fair value of plan assets and the benefit obligation. Benefit obligation is the pension plan obligation for pension plans and accumulated pension plan obligation for any other postretirement plans. No portion of a plan asset can be classified as current; current portion of net postretirement liability is the	Must recognize a liability in the balance sheet equal to the present value of the defined benefit obligation plus or minus any actuarial gains and losses not yet recognized, minus unrecognized prior service costs, minus the fair value of any plan assets. (Note: If this amount is negative, the resulting asset is subject to a "ceiling test.") Balance sheet classification not addressed in IAS 19.
Settlements and curtailments	Settlement gain or loss recognized when obligation is settled. Curtailment losses recognized when curtailment is probable of occurring, while curtailment gains are recognized when the curtailment occurs.	Gain or loss from settlement or curtailment recognized when it occurs.

Table 3: Descriptive Statistics

(in millions)	N	Mean	Median	Std Dev	Min	Max
GAAP - Pension Asset (Liability)	25	(2,895)	(1,391)	3,611	(13,129)	1,169
IFRS - Pension Asset (Liability)	25	4,761	1,395	7,663	(164)	32,635
Pension Expense	25	484	166	733	(394)	2,680
Total Assets	25	251,233	43,705	504,700	7,874	2,264,909
Total Liabilities	25	198,566	32,175	454,834	6,201	2,036,661
Revenue	25	72,193	52,796	77,837	5,997	383,221
Net Income	25	6,738	2,926	7,643	(2,238)	30,460
Current Assets	21	18,926	14,186	15,417	3,899	58,984
Current Liabilities	21	16,209	10,855	15,348	2,126	62,633

Table 4: Test Statistics

Pension Asset (Liability)	Mean	t value	T-test Significance	Median	Median Test	Median Test Significance
GAAP (in millions)	(2,894.51)			(1,391)		
IFRS (in millions)	4,760.50			1,395		
Test Calculation		(3.659)	< .001		(6.44)	< .0001