An Event Study Analysis of Statement of Financial Accounting Standards No. 158

Abraham N. Fried[1]

[1] Stillman School of Business, Seton Hall University, South Orange, NJ, USA

Correspondence: Abraham N. Fried, Department of Accounting and Taxation, Stillman School of Business, Seton Hall University, 400 South Orange Avenue, South Orange, NJ 07079, USA. Tel: 1-973-275-2956. Fax: 1-973-761-9217. E-mail: abraham.fried@shu.edu

Received: March 11, 2013 Accepted: April 23, 2013 Online Published: April 24, 2013

doi:10.5430/afr.v2n2p45 URL: http://dx.doi.org/10.5430/afr.v2n2p45

Abstract

This study examines the economic consequences of the Statement of Financial Accounting Standards (SFAS) No. 158 requirement to recognize previously disclosed net pension and postretirement benefit obligations on the balance sheet. The study documents a negative stock price reaction around the release of the SFAS No. 158 Exposure Draft. Additionally, the results indicate that the market reaction varies cross-sectionally with the magnitude of the balance sheet adjustment required by SFAS No. 158 and is driven by the other postretirement plan adjustment rather than the pension plan adjustment. The findings have important implications for the recognition versus disclosure debate because they document a significant market reaction to the relocation of already disclosed information from the financial statements footnotes to the balance sheet.

Keywords: Recognition and disclosure, Economic consequences, Market reaction, Pensions and postretirement plans

1. Introduction

Statement of Financial Accounting Standards (SFAS) No. 158, Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans, moves disclosures related to defined benefit pension plans and other postretirement (primarily health and life insurance) benefit (OPEB) plans from the footnotes to the balance sheet. The measurement of pension and OPEB obligations remains unaltered. However, firms must recognize the funded status of these postretirement benefit plans on the balance sheet. (Note 1)

This study examines the effects of this reporting change on the market's valuation of the firm. Specifically, the study examines the market valuation effect of the rule change by examining the market reaction to the events leading to the issuance of SFAS No. 158. The study triangulates the results by examining whether the extent of the market reaction varies cross-sectionally with the balance sheet effect of the rule change. By studying market valuation following the SFAS No. 158 regulation change, this paper sheds light on the long running debate about the differences between recognition and disclosure requirements.

Recognized items may be perceived as more reliable than disclosed items (Bernard and Shipper, 1994) or managers may have less incentive to manipulate items that are simply disclosed and not recognized (Holthausen and Watts, 2001). Prior studies (Aboody, 1996, Ahmed, Kilik, & Lobo, 2006, Davis-Friday, Liu, & Mittelstaedt, 2004) examine this question in various settings and conclude that the market places greater weight on recognized items and treats disclosed items as less reliable. The current study extends and expands upon this stream of literature by reexamining the disclosure and recognition question using the issuance of SFAS No. 158 as the setting.

These prior studies were all conducted in a setting where there was a difference in the measurement or content of the information being disclosed or recognized (either cross-sectionally or over time). SFAS No. 158 offers a unique setting to explore the disclosure and recognition question. Unlike these prior studies, this setting differs insofar as the item in question - the funded status of pension and postretirement plans - was already disclosed. SFAS No. 158 simply moved the disclosure of these amounts from the financial statement footnotes to the face of the balance sheet.

Finding that the market reacted to the new recognition requirement and that the reaction was related to the magnitude of the SFAS No. 158 balance sheet adjustment is consistent with the notion that market participants do not view disclosure as a substitute for recognition even when there is no new information or measurement change included in

the recognition. This result has major implications for standard setters since it lends even stronger support to the notion that market participants focus on recognized items and do not fully incorporate disclosed items.

A sample of over 300 S&P 500 firms with postretirement benefit plans was examined. For over 90% of firms recognizing the funded status on the balance sheet increased (decreased) reported liabilities (equity) and weakened their balance sheets. On average, a firm's market value declined significantly at the time the SFAS No. 158 exposure draft (ED) was issued. Further, the market's reaction was related to the magnitude of the balance sheet adjustment. However, these results are primarily related to the required OPEB adjustment and not the pension plan adjustment. This suggests that researchers interested in studying SFAS No. 158 should not limit their analyses to pension liabilities but should focus on OPEB obligations as well. This would also serve to avoid a potential correlated omitted variable problem.

The remainder of the paper is organized as follows. Section 2 provides background and reviews related prior research. Section 3 describes the sample selection, data definitions and provides descriptive statistics. Section 4 examines the market reaction to the pronouncement and Section 5 summarizes and concludes.

2. Background and Literature Review

2.1 Pension Accounting

Prior to SFAS No. 158, accounting and disclosure for postretirement plans was governed by SFAS Nos. 87, 106 and 132R. The provisions of these pronouncements allowed firms to smooth postretirement related costs (credits) caused by (i) changes in actuarial assumptions (ii) plan amendments and (iii) "abnormal" asset returns. These items were reported in the footnotes, but were amortized to income and the balance sheet over time. (Note 2)

SFAS No. 158 moves disclosures related to defined benefit pension plans and OPEB plans from the footnotes to the balance sheet. The statement requires firms to recognize the funded status of these plans on the balance sheet. Following SFAS No. 158, firms are no longer allowed to smooth postretirement plan costs for balance sheet purposes but are required to report them through charges to the appropriate asset/liability account and Accumulated Other Comprehensive Income (AOCI). By making the adjustments to AOCI, the FASB has, for the time being, permitted these costs to continue to be smoothed on the income statement. (Note 3)

To date the evidence from the research on the implications of SFAS No. 158 for firm value is mixed. Mitra and Houssain (2009) examine the value-relevance of pension transition adjustments in the year of adoption of SFAS No. 158. They find a negative association between the magnitude of pension transition adjustments and stock prices and returns. They conclude that the market assesses recognized information more effectively than disclosures. However, their sample consists of almost 700 S&P 1500 firms and they include components of OCI (other comprehensive income) in their analyses. Therefore, their research design does not capture the market's initial reaction to the promulgation of SFAS No. 158.

Beaudoin, Chandar, & Werner (2010) investigate the cause of defined benefit pension plan freezes during the period preceding the promulgation of SFAS No. 158. They find a significant association between the impact of the adoption of SFAS No. 158 on firm's balance sheets and profitability and the decision to freeze the plans. Their results are consistent with managers reacting to the pending adoption of SFAS No. 158 by attempting to reduce its negative impact on firm value despite the fact that there is no change in the measurement of the pension obligation. Houmes, Boyland, & Chira (2011) also investigate the market's reaction to SFAS No. 158. They report that firms, especially those in financial distress, use higher discount rates to estimate the projected benefit obligation (PBO). They also find an asymmetric market reaction around the events leading up to the adoption of SFAS No. 158 where firms with high financial risk experienced negative returns while those with low risk experienced positive returns.

Fried (2012) investigates management's reaction to the recognition of previously disclosed information by considering firms' lobbying behavior in response to the regulatory change. He finds that firms with underfunded plans were more likely to lobby against the standard. Additionally, he documents that the likelihood of a firm lobbying was significantly related to the magnitude of the SFAS No. 158 balance sheet adjustment.

Market valuation studies of the impact of SFAS No. 158 find mixed results. Beaudoin, Chandar, & Werner (2011) do not find any incremental valuation effects of the newly recognized pension liabilities and conclude that analysts have always adjusted their analyses to account for the pension plans. In contrast, Knowles (2011) finds that firms with underfunded defined benefit plans experience an increase in valuation after they recognized the net funded status. She attributes the increase in value to a reduction in estimation risk and argues that prior to SFAS No. 158 pension disclosures were less than transparent and overly complex. Related to the current study, Knowles (2011) hypothesizes that the process of estimating firm value improves after the adoption of SFAS No. 158 since economically relevant

information is viewed as more reliable by the act of recognition alone. She also acknowledges that recognition could have real contracting effects that did not exist with disclosure. Knowles (2011) suggests that her use of a longer horizon than Beaudoin et al. (2011) may explain the difference in their results.

Taken together, the recent research on SFAS No. 158 suggests that the market might react positively to the adoption of the standard if it reduces investors' and analysts' information processing costs or the market might react negatively if the act of recognition increases firms' contracting costs. Finally, the extent of the market's reaction, in whichever direction, is likely related to firms' financial position before and after adopting the standard. The current study extends prior research by associating the market's reaction to the implementation of SFAS No. 158 with the extent of the balance sheet adjustment for both pensions and OPEBs. Further, this study uses an event study design to capture the market's immediate reaction to SFAS No. 158 and to minimize the possibility of confounding events impacting the results.

2.2 Disclosure versus Recognition

An examination of the market reaction to the issuance of SFAS No. 158 provides additional insight into the controversy over the equivalence of disclosure and recognition. If disclosure is a substitute for recognition, there should be no valuation effect resulting from the adoption of SFAS No. 158. If, however, disclosure is not a substitute for recognition, the new recognition requirement could affect market valuation.

The recognition versus disclosure controversy typically follows two (not unrelated) trains of thought. The first deals with the quality of the numbers and whether the market weighs disclosed numbers in the same way that it does those recognized on the financial statements. The second, based on contracting theory, notes that even if there was no difference between the quality of and/or the market's perception of recognized versus disclosed numbers, secondary effects resulting from recognition can play a significant role. Financial statement recognition of an item can result in creditors being more reluctant to make loans to companies with weaker balance sheets (lower income). Additionally, recognition could also negatively impact the level and variability of a firm's financial ratios, increasing the probability of debt covenant violations. These secondary effects can lead to a negative market reaction as a result of these adverse effects.

Bernard and Schipper (1994) posit that, in general, recognized items are viewed as more reliable than disclosed items, by virtue of their recognition alone. Under the FASB's conceptual framework, to be recognized an item must be measurable and reliable, criteria that need not be met for disclosed items. Thus investors perceive recognized items as inherently more reliable than disclosed items. Consistent with the above, Libby, Nelson, & Hunton (2006) find that auditors allow firms greater leeway in reporting disclosed financial information versus information that is recognized. On the other hand, Holthausen and Watts (2001) argue that recognition may lead to less reliability. They argue that managers have more incentive to manipulate recognized items relative to disclosed items.

A number of empirical studies have examined the difference in market valuation for recognized versus disclosed items. In the oil and gas industry, Aboody (1996) finds that the recognized write downs of full cost firms were given greater weight by the market than the footnote disclosures of successful effort firms. Ahmed, Kilic, & Lobo (2006) find that post-SFAS No. 133 recognized derivatives are valued by the market whereas pre-SFAS No. 133 disclosed derivatives are not. More pertinent to the subject matter of this study, Davis-Friday, Liu, & Mittelstaedt (2004) find that the market treats disclosed information concerning OPEB obligations as less reliable than recognized information.

This study extends previous research by reexamining the recognition versus disclosure question in a unique setting. Unlike the studies cited above, the SFAS No. 158 reporting change does not require any measurement change. It simply involves the relocation of information. Rather than disclosing the funded status in the footnotes, firms are now required to recognize the funded status on the balance sheet. However, the calculation of the funded status is unaffected. Whether or not this purely disclosure versus recognition requirement induces the market to react is of interest to standard setters as well as financial statement users.

2.3 Market reaction and valuation of pension assets/liabilities and cost components

This study examines two research questions. First, does the market react to the recognition of previously disclosed information, as required by SFAS No. 158? Second, does the extent of the reaction, if any, vary according to the magnitude of the effect of recognition on the balance sheet? Whether or not this pronouncement should have any market valuation effects is an empirical question that depends on the valuation implications of recognition versus disclosure.

In general, it is clear that the market values pension assets and liabilities, whether recognized or disclosed. Early research into this question was confined to the Accumulated Benefit Obligation (ABO), the liability measure used prior

to the issuance of SFAS No. 87. Feldstein and Morck (1983), Daley (1984) and Landsman (1986) find that the market values the pension liability. Their results were confirmed using SFAS No. 87 disclosures by Barth (1991), Barth, Beaver, & Landsman (1992) and Gopalakrishnan and Sugrue (1993).

With respect to the question of recognition versus disclosure, several studies (Coronado & Sharpe, 2003, Gold, 2005, and Coronado, Mitchell, Sharpe, & Nesbitt, 2008) take the position that the market does not value off-balance sheet pension debt in an appropriate manner and that the deficiency is, in part, related to the fact that the pension information is not recognized on the balance sheet. On the other hand, Li, Merton, & Bodie (2006) find "... that equity risk does reflect the risk of the firm's pension plans despite arcane accounting rules for pensions." Their findings are consistent with the position that markets do not differentiate between disclosed and recognized pension data. However, if recognition affects debt covenants and/or funding ratios (Dowdell Jr., Klammn, & Spindle, 2010), then there could be real cash flow implications for firms by means of additional required contributions to postretirement plans. In this case, the market would react negatively and the extent of the reaction would be related to the firm-specific impact of the recognition requirement.

3. Sample, Data Definitions, and Descriptive Statistics

This section discusses data collection procedures, defines key variables used throughout the study, and presents descriptive statistics. Variables that are specific to certain aspects of the study are defined in their appropriate section.

3.1 Sample – The S&P 500

The sample is restricted to S&P 500 firms because these firms tend to have the largest postretirement plans. S&P 500 firms represent over 90% of the total sum of the PBO for all companies in the Compustat universe from 2000 to 2006. Thus, these firms should provide the most powerful tests of the effect of the recognition requirement.

Table 1. Sample selection

Firms in S&P 500 on all three dates	475
Less:	
Firms without postretirement plans	92
	383
Less:	
Firms missing CRSP data	46
Returns Sample	**337**
Less:	
Firms missing Compustat data	99
Financial Variable Sample	**238**

Three dates are of interest in the development of SFAS No. 158. The FASB first announced the intent to overhaul pension accounting on November 10, 2005. The SFAS No. 158 ED was released on March 31, 2006, and the final pronouncement was issued September 30, 2006. To be included in the sample, a firm had to be part of the S&P 500 throughout this time period. Firms that were added to or dropped from the S&P 500 during this period were not included in the sample, because being added to or dropped from the S&P 500 index may be a significant confounding event. As Table 1 indicates, 475 firms were a part of the S&P 500 throughout the development of SFAS No. 158. Of these, 383 (81%) had postretirement plans.

The analyses performed in this study required the compilation of data from numerous sources. Returns data were collected from CRSP, financial statement data were collected from the Compustat annual dataset, and pension related variables were collected from the Compustat annual pension dataset - a new dataset that compiles pension variables not included in the Compustat annual dataset. Of the 383 S&P 500 firms that had postretirement plans, 337 had the necessary data from the Center for Research in Security Prices (CRSP) to perform the market study. The analysis of the interaction of the market reaction with firm characteristics requires data from both Compustat databases. An additional 99 firms were dropped because they did not have the required data.

3.2 Variables – Data Definitions

The calculation of the funded status and the balance sheet adjustment resulting from SFAS No. 158 is described below. Appendix A provides information regarding the Compustat variables needed to make the necessary calculations.

3.2.1 Funded Status

The funded status (FS) of the plan is defined as the plan assets minus the obligation. For pension plans, it is the pension plan assets (PPA) less the projected benefit obligation (PBO); PENFS = (PPA – PBO). For OPEB plans, the funded status is plan assets (OPEBPA) less the accumulated post retirement obligation (APBO); i.e. OPEBFS = (OPEBPA – APBO). The combined overall funded status, is SUMFS=PENFS+OPEBFS.

3.2.2 The SFAS No. 158 Adjustment

This study takes the position that rather than focus solely on the funded status of the postretirement plans, the metric of interest is the SFAS No. 158 balance sheet adjustment. This required adjustment is a direct measure of the impact of the new recognition requirement. A firm that has already recognized the funded status of its postretirement obligations will not be affected by the new reporting requirement. A firm will only be affected to the extent that the obligation has previously been unrecognized. The adjustment is calculated as the difference between the plan's FS and the already recognized balance sheet asset or liability.

For pension plans the adjustment is PENADJ = PENFS-PENBS where PENBS is the amount already recognized on the balance sheet. For OPEB plans, the adjustment is OPEBADJ=OPEBFS-OPEBBS and the combined overall adjustment is SUMADJ=PENADJ+OPEBADJ. (Note 4)

Table 2 presents descriptive statistics of these variables at the time (Fiscal Year 2005) the FASB added pension accounting to its agenda. Generally, pension plans of the sample firms are highly underfunded. The mean (median) underfunding is $504 ($223) million. The generally unfunded OPEB plans are underfunded by $1.2 billion on average (median $260 million) bringing the total mean (median) underfunded status to $1.75 billion ($609 million).

Table 2. Descriptive Statistics

($ in millions)	N	Median	Mean	Standard Deviation	10th Percentile	90th Percentile
Pension Obligation (PBO)	238	1,880	5,435	12,133	300	12,205
Pension Plan Assets	238	1,627	4,930	11,612	221	11,465
Pension Plan Funded Status	238	(223)	(504)	1,380	(1,575)	149
SFAS No. 158 Pension Adj	238	(275)	(1,016)	2,789	(2,214)	(28)
OPEB Obligation	238	295	1,605	6,772	21	2,425
OPEB Assets	238	0	356	1,633	0	713
OPEB Funded Status	238	(260)	(1,249)	5,220	(1,951)	(16)
SFAS No. 158 OPEB Adj	238	(38)	(465)	2,369	(628)	14
Total Funded Status	238	(609)	(1,753)	5,771	(3,433)	(42)
SFAS No. 158 Total Adj	238	(363)	(1,482)	4,883	(2,986)	(33)
MIX	238	0.698	0.685	0.125	0.576	0.800
DUR	238	0.335	0.338	0.144	0.182	0.512

The adjustments surprisingly indicate that the smoothing provisions have resulted in the balance sheet asset/liability for pension plans (as opposed to OPEBs) not being remotely connected to the funded status. The average OPEB adjustment is negative $465 million. That amount brings the balance sheet liability to $1.2 billion (the average OPEB funded status) indicating that the balance sheets, on average, reflect an underfunded OPEB status of nearly $0.8 billion, two-thirds of the actual underfunded status.

For pension plans, the story is quite different. Although the average underfunding is $0.504 billion, the average adjustment is nearly twice that at negative $1.02 billion. Thus, although the average pension plan is underfunded by $0.5 billion, the balance sheet shows an *overfunding* status in nearly that same amount.

Note that for over 90% of the firms in the sample, the provisions of SFAS No. 158 required a downward adjustment to their balance sheets. The 90th percentile for the SFAS No. 158 total adjustment is negative $33 million.

3.2.3 SFAS No. 158 and Balance Sheet Volatility

In addition to its impact on the levels of a firm's assets, liabilities and equity, recognition of the postretirement funded status increases the volatility of corporate balance sheets. The increased volatility could come from either volatility in the PBO and/or volatility in the plan assets, PPA. (Note 5)

The potential volatility introduced to the balance sheet by the PBO is not uniform for all firms. The extent to which the PBO is affected by changes in the discount rate (and other pension assumptions) is a function of the pension plan's duration. The duration of pension liabilities is the weighted average years to maturity of the obligations. The present values of the dollar amounts due each year are used as the weights. The longer the duration, the larger the impact of a change in the discount rate on the PBO. Firms with pension liabilities of longer duration will have higher balance sheet volatility than firms with similar liabilities of shorter duration.

A measure of duration (DUR) is not provided directly in the pension disclosures. As a surrogate for duration, the ratio of service cost to the sum of interest cost and service cost is used (see Picconi, 2006). A stream of payments made further in the future is characteristic of debt with longer duration. In terms of pension plans, this is consistent with relatively newer plans with younger employees. Such plans tend to have low interest cost (since the PBO is small) relative to service cost. Plans with lower duration, on the other hand, are consistent with more mature plans whose employees are nearer to retirement. For such plans, the ratio of interest to service cost is considerably higher. The average DUR of 0.34 shown in Table 2 is consistent with "older" plans as on average interest costs are twice as large as service costs.

The potential volatility of the PPA depends on the nature of the pension assets. Pension assets are generally invested in either equity or bond securities and the asset mix impacts the expected portfolio risk and return. The higher the equity-to-bond mix (MIX), the greater the volatility introduced to the balance sheet through the PPA. On the other hand, along with higher volatility (risk) comes higher expected returns. Firms whose plans are more heavily invested in equities are (in the long run) more likely to improve the funded status of their pension plans thereby minimizing the impact on their balance sheets. The higher the MIX, the greater the expected positive impact (the return on these assets) on the balance sheet. The variable MIX is obtained directly from the Compustat pension data base. Table 2 indicates that on average (mean and median) firms allocated 70% of their investments to equities. The range was relatively narrow with a MIX of 58% for the 10^{th} percentile and 80% for the 90^{th} percentile.

4. Market Reaction to SFAS No. 158 Pronouncements

4.1 Overall Market Reaction

4.1.1 Hypothesis

The first part of this study focuses on investor reaction to the pronouncements that led to the new reporting requirements. In an efficient market, if disclosure is equivalent to recognition, there should be no significant change to the firm's market value simply because previously disclosed information is now going to be recognized. An efficient market should have impounded the impact of the previously disclosed information in the firm's value. However, if recognized items are weighed differently by the market the markets would react to the newly recognized items. Moreover, for the majority of firms, reporting the funded status of the postretirement benefit plans results in both weaker and more volatile balance sheets (see Table 2). This may in turn lead to increased contracting costs for firms. Stated in the null, the first hypothesis says:

Hypothesis 1: Firms with postretirement benefit plans should see no significant market reactions around the time of the events leading to the release of SFAS No. 158.

The dates of the various pronouncements examined are listed below:

November 10, 2005 (OA) FASB's original announcement that they were embarking on an overhaul of pension accounting,

March 31, 2006 (ED) Exposure Draft is released,

September 30, 2006 (FP) Final pronouncement is released. (Note 6)

4.1.2 Research Design

To test for market reaction, the model introduced by Schipper and Thompson (1983) and used more recently by Marquardt and Wiedman (2007) is employed. The model tests whether the market reacts in a significant manner to (any of) the three events relating to the recognition requirement of SFAS No. 158. This event-study approach has the advantage that (1) it allows for simultaneously analyzing multiple announcement events relating to the same accounting rule change and (2) it controls for the potential cross-sectional correlation resulting from the (announcement) events occurring on the same day for all firms in the sample.

The following regression is estimated for the portfolio of firms in the sample.

$$R_{pt} = \alpha + \beta R_{mt} + \sum_{k=1}^{K} \gamma_k D_{kt} + \varepsilon_t \quad (1)$$

where R_{pt} is the return on day t of the portfolio of the S&P firms in the sample; R_{mt} is the (CRSP equal-weighted) market return on day t; D_{kt} is a dummy variable set to one for each day of the window corresponding to each of the (K=) 3 announcement events (OA, ED and FP) and is zero otherwise; α and β are parameter estimates and ε_t is the error term. The key variable of interest is the dummy coefficient $\gamma_{k,}$ the estimated mean effect or abnormal return for event k (=1,2,3). If disclosure is a substitute for recognition, the coefficient should not be statistically different from zero. If however, recognized items are weighed differently by the markets, and/or because of contracting effects, the coefficient would be negative.

The regression was estimated over the two-year period (503 trading days) beginning January 3, 2005 through December 29, 2006. That is, the parameters were estimated over 10-months prior to the first pronouncement event and ending three-months after the last event.

Two portfolio weighting schemes were used. In the first, the N=337 firms in the sample are equally weighted ($R_{pt} = \frac{1}{N}\sum_i R_{it}$) where R_{it} is the ith firm's return on day t. The second weighting scheme is designed to correct for the possibility of cross-sectional heteroskedasticity and involves first running equation (1) for each firm individually. The diagonal elements of the cross-sectional covariance matrix of the residuals are then used to weight the returns. (Note 7)

4.1.3 Results

Table 3 presents the results for the market return tests for the 337 S&P500 firms that had defined benefit plans. The first three columns correspond to the results for the three announcement dates for the equally weighted portfolios. The last three columns present results for the portfolios with individual firms' returns weighted by their respective (residual) variances.

Table 3. The stock market reaction to the issuance of SFAS No. 158

	Equally Weighted Portfolio			Portfolio Weighted by Variances		
Event:	OA	ED	FP	OA	ED	FP
Window						
Short	.0024	-.0061	-.0005	.0043	-.0058	-.0009
(-1 to 0)	(1.28)	(-3.24)***	(-.25)	(2.07)**	(-2.75)***	(-0.40)
Intermediate (-3	.0005	-.0026	.0009	.0013	-.0026	.0006
to +1)	(0.40)	(-2.15)**	(0.73)	(0.99)	(-1.96)**	(0.42)
Long	.0009	-.0019	.0008	.0008	-.0022	.0009
(-5 to +5)	(1.10)	(-2.34)**	(1.00)	(0.87)	(-2.38)**	(1.01)

(t-values in ( )) Significance levels: *p<0.10, **p<0.05, ***p<0.01

Three windows were examined: a 2-day window (-1,0); an intermediate 5-day (-3,+1) window and a longer 11-day (-5 to +5) window. Pension accounting and the on-off balance sheet controversy surrounding it has been widely discussed in the financial and academic literature. The issues were not new and were well known. Therefore, given the relative interest in the issue, one might expect reaction to "leakages" prior to the pronouncement and (almost) immediate reaction to the release. As such, the short and intermediate windows were not symmetric around the announcement date (t=0). (Note 8) The longer 11-day window was included to verify whether there was any reversal following the initial reaction.

The results were relatively uniform across all windows, portfolio weighting approaches and pronouncement dates. (Note 9) There was a significantly negative market reaction to the release of the ED with p-values of .05 and .01. Mean excess negative returns ranged from -0.2% to -0.6% with the shorter windows having larger (more negative) mean negative excess returns. In terms of economic significance, the results translate into losses of approximately 1.2% for the two-day window, 1.3% for the five-day window and 2.1% over the longer 11-day window. (Note 10)

The finding of negative excess returns leads us to reject the null hypothesis of no market reaction to the new pronouncement and is consistent with the notion that disclosure is not a substitute for recognition.

For the OA and FP events, the returns were not significantly different from zero except for the 2-day window for the OA where the results for the variance-weighted portfolio were significant but positive (+0.4%). An argument can be made, consistent with the results, that one might expect the greatest reaction to occur around the release of the ED. At the initial announcement date (OA) investors were unsure of the direction the FASB would ultimately take and by the time the final pronouncement (FP) was issued there was no longer any news in the release.

4.2 Market reaction and firm attributes

4.2.1 Hypotheses

The results for Hypothesis 1 indicate that on average there was a negative market reaction to the ED event. This does not mean necessarily that there was no effect at all on the other (OA and FP) days. It may be that the negative reaction some firms experienced was on average "hidden" by a positive or non-negative reaction experienced by other firms. Moreover, the market reaction documented above would not be expected to be uniform across all firms that have postretirement plans. One would expect that if the reaction was related to the SFAS No. 158 recognition requirements, the size of the reaction should be related to the effect on the firm's financial statements and/or other firm attributes related to contracting effects.

This leads to a number of testable hypotheses. First, one would expect that the market reaction should be positively related to the magnitude of the adjustment to the firm's financial statements.

> Hypothesis 2a: The market reaction around the time of the events (OA, ED and FP) leading to the release of SFAS No. 158 should be positively related to the magnitude of the SFAS No. 158 adjustment.

The arguments made with respect to negative market reaction being related to contracting costs could be expected to hold true for firms (already) in a weakened financial position or those whose covenants were in danger of being violated. One would therefore expect that investors would respond more negatively to firms with high leverage, low net worth and poor liquidity. In hypothesis form,

> Hypothesis 2b: The market reaction around the time of the events (OA, ED and FP) leading to the release of SFAS No. 158 should be positively related to the level of financial distress of the firm.

As discussed in Section 3, balance sheet reporting of the funded status of postretirement plans introduces increased volatility to corporate balance sheets. The increased volatility is related to the duration of the firm's pension liabilities and one expects the market to react more negatively to this increased volatility. This leads to the next hypothesis:

> Hypothesis 2c: The longer the duration of the pension liability, the more negative the market reaction around the time of the events (OA, ED and FP) leading to the release of SFAS No. 158.

The potential volatility of the funded status also depends on the nature of the equity-to-bond mix of the plan assets. One expects the market to react negatively to the higher volatility associated with a higher equity-to-bond mix. On the other hand, as noted previously, along with higher volatility (risk) comes higher expected returns. Thus, it may be that a positive relation exists between the market reaction and the equity-to-bond mix of pension assets. These arguments lead to the following, non-directional hypothesis:

Hypothesis 2d: The market reaction around the time of the events (OA, ED and FP) leading to the release of SFAS No. 158 should be different for firms with a relatively high equity-to-bond mix of pension assets.

4.2.2 Description and methodology

The following firm-specific variables were examined to determine their interaction with the market reaction, PENADJ, OPEBADJ, DUR, MIX, LEV, INC, SIZE and FSDUM. The first two (PENADJ and OPEBADJ, standardized by the firm's assets) directly address Hypothesis 2a – the relation between the balance sheet effect and the size of the market reaction to SFAS No. 158. LEV and INC test the extent to which financial distress plays a role in any market reaction (Hypothesis 2b). LEV is the firm's leverage ratio measured as long-term debt divided by total assets and INC is defined as net income divided by assets; a measure of ROA. Higher (lower) values of LEV (INC) would indicate greater levels of financial distress. DUR and MIX (defined above) are related to balance sheet volatility (Hypotheses 2c and 2d). SIZE, measured as the log of the firm's assets, is included as a control variable. Additionally, a dummy variable, FSDUM, equal to 1 for firms with underfunded pension plans is also included in the analysis. The purpose of this variable is to control for the possibility that firms with overfunded plans are immune to the effects of SFAS No. 158.

A straight-forward (and intuitive) approach to test the interaction of these variables with the market reaction would involve calculating γik for each firm i individually using equation (1) and then running the following cross-sectional regression over each of the (k=) 3 announcement periods.

$$\gamma_{ik} = b_{1k}+b_{2k}PENADJ_i+b_{3k}OPEBADJ_i+b_{4k}DUR_i+b_{5k}MIX_i+b_{6k}LEV_i+b_{7k}INC_i+b_{8k}SIZE_i+b_{9k}FSDUM_i \quad (2)$$

The resultant b_{pk}'s *(p=1,..9 and k=1,2,3)* would then be tested for significance. The drawback of this procedure is that it does not avoid the effect of residual correlation resulting from the event (pronouncement) date being the same for all firms. Consequently, t-values and significance levels would be "overstated".

To avoid this problem, the methodology used to test for the interaction between firm attributes and market reaction follows the three-step portfolio weighting procedure used by Marquardt and Wiedman (2007). The procedure is more complex and not immediately intuitive but yields the identical b_{pk}'s as equation (2) but without the bias in the t-values and significance levels.

The procedure involves three steps:

Step 1: The N x P matrix F is formed. The first column of F is comprised of 1's (the constant term). The other columns of F contain the (P-1) individual firm attributes examined; PENADJ, OPEBADJ, DUR, MIX, LEV, INC, SIZE and FSDUM. The attributes are taken from the firm's 2005 financial statements and since there are 238 firms (See Table 1) with data availability F is a matrix with (N=) 238 rows and (P=) 9 columns. (Note 11)

Step 2: Create the matrix W as below and use the 9 W'_p rows as portfolio weights to create 9 $\breve{R}_{pt}$ portfolio returns. Formally:

$$W = \begin{bmatrix} W'_1 \\ W'_2 \\ \vdots \\ W'_p \end{bmatrix} = (F'F)^{-1}F' \quad (3)$$

$$\breve{R}_{pt} = W'_p R_{it} \text{ , p=1,2…,P, t=1,2….T, i=,1…N} \quad (4)$$

where: W =P x N matrix of portfolio weights (In this analysis P is 9 and N=238 firms)

W'_p = pth row of portfolio weights corresponding to the pth characteristic

(pth column in F)

F = N x P matrix

$\breve{R}_{pt}$=return on portfolio p on day t

R_{it}= N x 1 vector of individual firm's security returns on day t

Step 3: The regression below is run P (=9) times.

$$\breve{R}_{pt} = \propto_p + \beta_p \breve{R}_{mt} + \sum_{k=1}^{K} b_{pk} D_{kt} + \breve{e}_{pt} \quad (5)$$

The expression is, of course, similar to that of equation (1) with one important caveat – the interpretation of the dummy coefficients, b_{pk}. As noted, they are identical to what would be found in a cross-sectional regression of abnormal returns against the firm characteristics (as in equation (2)) and they measure the effect of a given characteristic (and only that characteristic) on the market reaction. However, the standard errors calculated in this 3-step procedure account for the cross-sectional dependence as well as multi-collinearity among the firm attributes and the t-values are correspondingly lower.

4.2.3 Results - Market reaction and firm attributes

Table 4 presents the results for interaction of market reaction and firm attributes. The equations were run using the two-day (-1,0) window with the pension data (PENADJ and OPEBADJ) standardized by the firm's assets. Surprisingly, the coefficient for PENADJ does not show any significance for any of the three pronouncement dates. The OPEB effect is however very positively significant (0.1354 and 0.1537) for both the original announcement (OA) as well as at the time of the ED pronouncement (.05 and .01 levels of significance respectively). Aside from one exception, none of the financial distress variables (LEV, INC) or those related to balance sheet volatility (DUR and MIX) shows significance for any of the three pronouncement dates. Only INC for the OA window shows significance (at the .05 level) albeit in the opposite direction than expected.

Table 4. The determinants of the market reaction to the issuance of SFAS No. 158

	Expected Sign	OA	ED	FP
Intercept		0.0155*	-0.0089	-0.0109
		(0.099)	(0.343)	(0.245)
PENADJ	+	-0.0270	-0.0306	-0.0096
		(0.255)	(0.198)	(0.686)
OPEBADJ	+	0.1354**	0.1537***	-0.0109
		(0.022)	(0.009)	(0.854)
DUR	-	0.0006	0.0056	-0.0012
		(0.924)	(0.344)	(0.834)
MIX	+/-	-0.0010	0.0096	0.0019
		(0.898)	(0.227)	(0.806)
LEV	-	-0.0031	-0.0012	-0.0006
		(0.426)	(0.752)	(0.871)
INC	+	-0.0449**	-0.0095	0.0127
		(0.049)	(0.674)	(0.576)
SIZE		-0.0006	-0.0003	0.0008
		(0.371)	(0.657)	(0.219)
FSDUM	-	-0.0038**	-0.0019	0.0013
		(0.022)	(0.251	(0.446)

(p-values in ( )) Significance levels: *p<0.10, **p<0.05, ***p<0.01

It is not clear why the market reacts more to OPEBADJ than to PENADJ. One might speculate that the market had anticipated the FASB to require the recognition of the funded status of pension plans but did not expect that they would also include OPEBs. In comment letters submitted to FASB in response to the SFAS No.158 exposure draft, a number of writers took the position that the APBO did not meet the definition of a liability since the firm could always backtrack and rescind previously promised benefits. However, the fact that the magnitude of the market's reaction is significantly related to one component of the required balance sheet adjustment resulting from the adoption of SFAS No. 158 supports the conclusion that the market reaction is in fact driven by SFAS No. 158.

5. Summary and Conclusion

This study contributes to the discussion of whether disclosure is equivalent to recognition. SFAS No. 158 does not require any new information to be disclosed. Rather, it requires that previously disclosed information in financial statement footnotes be recognized on the face of the firm's balance sheet. If disclosure is a substitute for recognition there should be no economic impact resulting from this new reporting requirement. The study, however, demonstrates a link between a measure of the shift from disclosure to recognition (the SFAS No. 158 adjustment) and market valuation.

The finding of a significantly negative market reaction at the time of the release of the SFAS No. 158 ED indicates that the market does not view disclosure as equivalent to recognition. Furthermore, the market reaction was found to be positively related to the size of the balance sheet adjustment. The more negative the balance sheet adjustment, the more negative the market reaction. However, the reaction was found to be driven by the OPEB adjustment and not the pension adjustment. The results presented have implications for studies that examine SFAS No. 158 by highlighting the need to focus on OPEB obligations in addition to those of pension obligations. Studies that ignore this finding may suffer from an omitted variable problem. The study failed to find a link between the market reaction and the degree of volatility in the pension assets and liabilities. The study also did not find a link between the market reaction and the degree of financial distress of the firm.

The findings presented in the study have important implications for the recognition versus disclosure debate, because it documents a significant market reaction to the relocation of already disclosed information from the financial statements footnotes to the balance sheet.

Acknowledgements

I thank Harry Davis, Paquita Davis-Friday, Ariel Markelevich, and Jimmy Ye for their guidance and support. I also thank workshop participants at Baruch College, Hebrew University, Seton Hall University, and the American Accounting Association Annual Meeting for their helpful comments and suggestions.

References

Aboody, D. (1996). Recognition versus Disclosure in the Oil and Gas Industry. *Journal of Accounting Research* Vol. 34: 21-32. http://dx.doi.org/10.2307/2491423

Ahmed, A. S., E. Kilic, & G. J. Lobo. (2006). Does Recognition versus Disclosure Matter? Evidence from Value-Relevance of Banks' Recognized and Disclosed Derivative Financial Instruments. *The Accounting Review* (May): 567-588. http://dx.doi.org/10.2308/accr.2006.81.3.567

Barth, M. (1991). Relative Measurement Errors among Alternative Pension Asset and Liability Measures. *The Accounting Review* (July): 111-198.

Barth, M., W. H. Beaver, & W. R. Landsman. (1992). The market valuation implications of net periodic pension cost components. *Journal of Accounting and Economics* (15): 27-62. . http://dx.doi.org/10.1016/0165-4101(92)90011-P

Beaudoin, C., N. Chandar & E.M. Werner. (2010). Are potential effects of SFAS 158 associated with firms' decisions to freeze their defined benefit pension plans? *Review of Accounting and Finance* (Vol. 9, No. 4): 424-451.

Beaudoin, C., N. Chandar & E.M. Werner. (2011). Good disclosure doesn't cure bad accounting—Or does it? Evaluating the case for SFAS No. 158. *Advances in Accounting* (27): 99-110. http://dx.doi.org/10.1016/j.adiac.2011.03.001

Bernard, V., & K. Schipper. (1994). Recognition and disclosure in financial reporting. Working Paper University of Michigan and University of Chicago.

Coronado, J. L. & S. A. Sharpe. (2003). Did Pension Plan Accounting Contribute to a Stock Market Bubble? Brookings Papers on Economic Activity 1:2003, The Brookings Institute.

Coronado, J. L., O. S. Mitchell, S. A. Sharpe & S. B. Nesbitt. (2008). Footnotes Aren't Enough: The Impact of Pension Accounting on Stock Values. NBER Working Paper No. 13726.

Daley, L. (1984). The valuation of reported pension measures for firms sponsoring defined benefit plans. *The Accounting Review* (April): 111-198.

Davis-Friday, P. Y., C. S. Liu & H. F. Mittelstaedt. (2004). Recognition and disclosure Reliability: Evidence from SFAS No. 106. *Contemporary Accounting Research* 21: 399-429. http://dx.doi.org/10.1506/T0VC-Q15Y-W5QV-4UKQ

Dowdell, Jr. T.D., B.K. Klamm & R.M. Spindle. (2010). Predicting cash flows related to defined benefit plan contributions. *Journal of Pension Economics and Finance* (October): 505-532. http://dx.doi.org/10.1017/S1474747209990333

Feldstein, M. S., & R. Morck. (1983). Pension Funding Decisions, Interest Rate Assumptions, and Share Prices. Financial Aspects of the United States Pension System, edited by Zvi Bodie & John B. Shoven. University of Chicago Press.

Financial Accounting Standards Board (FASB). (2006). Statement of Financial Accounting Standards No. 158, Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans—an amendment of FASB Statements No. 87, 88, 106, and 132(R). September.

Financial Accounting Standards Board (FASB). (2003). Statement of Financial Accounting Standards No. 132(R), Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans—an amendment of FASB Statements No. 87, 88, and 106. December.

Financial Accounting Standards Board (FASB). (1990). Statement of Financial Accounting Standards No. 106, Employers' Accounting for Postretirement Benefits Other Than Pensions. December.

Financial Accounting Standards Board (FASB). (1985). Statement of Financial Accounting Standards No. 87, Employers' Accounting for Pensions. December.

Fried, A.N. (2012). Disclosure versus recognition: Evidence from lobbying behavior in response to SFAS No. 158. *Research in Accounting Regulation* 24: 25-32. http://dx.doi.org/10.1016/j.racreg.2011.12.006

Gold, J. (2005). Accounting/Actuarial Bias Enables Equity Investment by Defined Benefit Pension Plans. *North American Actuarial Journal* (July): 1-21.

Gopalakrishnan, V., & T. F. Sugrue. (1993). An Empirical Investigation of Stock Market Valuation of Corporate Projected Pension Liabilities. *Journa of Business Finance and Accounting*: 711-723. http://dx.doi.org/10.1111/j.1468-5957.1993.tb00286.x

Holthausen, R., & R. L. Watts. (2001). The relevance of the value relevance literature for financial accounting standard setting. *Journal of Accounting and Economics* 31: 3-75. http://dx.doi.org/10.1016/S0165-4101(01)00029-5

Houmes, R., B. Boyland & I. Chira. (2011). The valuation effect of accounting standard 158 on firms with high and low financial risk. *Atlantic Economic Journal* 39: 47-57. http://dx.doi.org/10.1007/s11293-010-9257-8

Knowles, R.L. (2011). Defined benefit pension sponsors and market prices after pension accounting reform. Working paper, Texas State University.

Landsman, W. (1986). An Empirical Examination of Pension and Property Rights. *The Accounting Review* (October): 662-691.

Lev, B. (1979). The Impact of Accounting Regulation on the Stock Market: The Case of Oil and Gas Companies. *The Accounting Review* (July): 485-503.

Li, J., R. C. Merton, & Z. Bodie. (2006). Do a firm's equity returns reflect the risk of its pension plan? *Journal of Financial Economics* (July): 1-26.

Libby, R., M. W. Nelson, & J. E. Hunton. (2006). Recognition v. Disclosure, Auditor Tolerance for Misstatement, and the Reliability of Stock-Compensation and Lease Information. *Journal of Accounting Research* 44: 533-560. http://dx.doi.org/10.1111/j.1475-679X.2006.00210.x

Marquardt, C. A., & C. I. Wiedman. (2007). Economic consequences of financial reporting changes: diluted EPS and contingent convertible securities. *Review of Accounting Studies* 12: 487-690. http://dx.doi.org/10.1007/s11142-007-9040-5

Mitra, S. & M. Hossain. (2009). Value-relevance of pension transition adjustments and other comprehensive income components in the adoption year of SFAS No. 158. *Review of Quantitative Finance and Accounting* 33: 279-301.

Picconi, M. (2006). The perils of pensions: Does pension accounting lead investors and analysts astray? *The Accounting Review* Vol. 81, No. 4 (July): 925-955. http://dx.doi.org/10.2308/accr.2006.81.4.925

Schipper, K., & R. Thompson. (1983). The impact of merger related regulations on the shareholders of acquiring firms. *Journal of Accounting Research* 21: 184–221. http://dx.doi.org/10.2307/2490943

Notes

Note 1.The term postretirement benefit plans encompasses both defined benefit pension plans as well as other postretirement (health and life insurance) plans.

Note 2. An exception to the 'smoothing' practice was called for if the resultant balance sheet liability proved to be lower than a plan's (un)funded status as measured using the Accumulated Benefit Obligation (ABO). Those firms were required to post a minimum-liability adjustment (MLA) to bring the balance sheet liability up to the level of the unfunded status as measured with the ABO.

Note 3. The determination of the future treatment on the income statement is now under consideration as part of the FASB's agenda.

Note 4. Calculating the adjustment from Compustat is not straightforward, especially for companies that were required to make the Minimum Liability Adjustment. Also, the calculation differs for the pre and post SFAS No. 158 period. See Appendix A for details.

Note 5. These points are also made in a comment letter submitted by Xerox to the FASB "After initial application, volatility in capital markets may erode investor confidence as asset valuation or discount rate changes drive additional instability to companies balance sheets and equity ratios."

Note 6. Focusing on these dates is consistent with prior literature. Lev (1979) examined the effects of the SFAS 19 exposure draft only. Marquardt and Wiedman (2007) examined two dates related to FASB staff position 129-a, its initial release and its final draft. They also examined four dates related to EITF Issue No. 04-8. They look at the original announcement, the initial draft, a public meeting leading up to its release, and its final ratification.

Note 7. More specifically, $R_{pt} = \sum_i \frac{c_i}{C} R_{it}$ where c_i is the inverse of the ith firm's residual variance and $C=\sum c_i$

Note 8. This argument follows that of Marquardt and Weidman (2007) but in the *opposite* direction. They also used a non-symmetric window (-1 to +3) because the event they were interested in (accounting for contingent convertible securities) was not widely followed and only affected a relatively small number of companies. Thus, they argued that there were would be some time required until the market adapted/learned about the implications of the announcement and one would not expect reaction or anticipation (leakage) prior to the announcement.

Note 9. The tests were also run using a value-weighted market index. The results were similar with all the ED windows (for both equal-weighted and variance-weighted portfolios) showing significant negative mean excess returns. The significance levels were slightly lower than those above (.10 or .05 rather than .05 or .01) and the negative excess returns were correspondingly smaller.

Note 10. The losses are calculated by multiplying the mean loss by the number of days; i.e. for the 2-day window 0.6% x 2=1.2%; for the five-day window 0.26% x 5 = 1.3% and for the 11-day window 0.19% x 11 =2.1%. The mean market value of equity for the sample of firms was approximately $25 billion. Thus over the respective holding periods, in dollar terms the losses were between one-quarter to one-half billion dollars.

Note 11. These 238 firms had similar results as the 337 firm full sample presented in Table 3. For the 2-day window, there were insignificant positive (negative) returns for the OA (FP) pronouncement date. For the ED pronouncement date, the excess negative return was also –0.6% and the t-value of -3.16 was significant at the .002 level of significance.

Appendix A: Calculation of SFAS No. 158 Adjustment

ADJUSTMENT FOR PENSION PLAN (Pre SFAS No. 158)		
Description	Variable	Compustat Pension Dataset Variable
Pension Plan Assets		PPLAO
- Projected Benefit Obligation		PBPRO
= Funded Status	FS =PPLAO-PBPRO	
-Balance Sheet Net Asset/Liability*		PCPPAO
= Pension Adjustment	PENADJ= FS - PCPPAO	

* The Balance Sheet Asset/Liability is defined by Compustat as the asset/liability that would be reported in the absence of the minimum liability adjustment (even if the firm took that adjustment).

The above holds true if the firm was not required to take a "Minimum Liability Adjustment" (MLA). If it was required to, then part of the adjustment (Compustat Pension Dataset Variable – PBACOMIN) is taken by the MLA. In that case,

$$PENADJ = (FS – PCPPAO) + PBACOMIN$$

[The adjustment is an addition, since Compustat records PBACOMIN as a positive number – the 'debit' to AOCI]

ADJUSTMENT FOR OPEB PLANS (Pre SFAS No. 158)		
Description	Variable	Compustat Pension Dataset Variable
OPEB Plan Assets		PRAA
-APBO		PRBO
= OPEB Funded Status	PRFS =PRAA-PRBO	
-Balance Sheet Net Asset/Liability		PRBA
= OPEB Adjustment	OPEBADJ= PRFS - PRBA	

Post SFAS No. 158, the balance sheet asset/liability is equivalent to the funded status. The adjustment is calculated 'as if' the FASB had not issued the rule change and is equivalent to the sum of the unrecognized gains and losses and prior service cost as below.

ADJUSTMENT FOR Pension and OPEB PLANS (Post SFAS No. 158)		
Description	Pension Dataset Variable	OPEB Dataset Variable
Unrecognized gains and losses	POAJO	PROADJ
Unrecognized prior service cost	PCUPSO	PRPSC
Total Adjustment		