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Market Valuation of Excess Pension Assets: Evidence from the Market for Corporate Control

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ABSTRACT

This study investigates the relation between excess pension assets and changes in shareholders' wealth associated with acquisition announcements. The analysis empirically investigates the pricing of excess pension assets as reflected in abnormal returns of target firms and acquiring firms and combined firm value. The evidence shows that excess pension assets are revalued in acquisitions, and the revaluation is captured entirely by the target firms' shareholders. Finally, there is no strong evidence that transfers of wealth from labor to shareholders are prevalent in resisted takeovers.

Introduction

Academic literature has focused on determining the ownership rights to the excess pension assets of a defined benefit pension plan (Ippolito, 1985; Shleifer and Summers, 1988; Petersen, 1992; and Mittelstaedt and Regier, 1993). An important issue is whether corporate acquisitions can serve as a mechanism to transfer the ownership rights of these assets from one stakeholder to another. In particular, Shleifer and Summers (1988) theorize that hostile takeovers are used to violate implicit labor contracts and thereby transfer pension plan–related wealth from labor to shareholders.

Previous studies have been limited to examining the relation between acquisition premiums and wealth transfers associated with pension asset reversions

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and the results are inconclusive (Bowers, Christea, and Mittelstaedt, 1994; Pontiff, Shleifer and Weisbach, 1990; and Mitchell and Mulherin, 1989). For example, Bowers, Christea, and Mittelstaedt and Pontiff, Shleifer, and Weisbach find that wealth transfers from labor to shareholders (i.e., violation of implicit labor contracts) do not constitute a primary source of increases in equity value from acquisitions. However, their results do indicate that, in some cases, excess pension assets represent a significant portion of takeover premiums. Both studies also find that only a small percentage of firms actually terminate their defined benefit plans following an acquisition. Mitchell and Mulherin (1989) find no direct relation between excess pension assets and takeover premiums.

This study includes firms that continued their defined benefit plan, had no defined benefit plan, or terminated their defined benefit plan after the acquisition. By focusing only on pension asset reversions, previous studies have ignored the fact that target firms' excess pension assets are valuable even in the absence of termination. Firms can avail themselves of excess pension assets (and also avoid additional taxes) by adjusting actuarial assumptions and thereby lowering future contributions.[1]

This study extends previous research by examining abnormal returns. This extension is important because abnormal returns measure the total change in shareholders' wealth, while acquisition premiums measure only the division of the wealth between the acquiring and target firms' shareholders. Therefore, in an efficient market, any repricing of excess pension assets, or wealth transfers associated with these assets due to the announcement of the acquisition proposal, will be reflected in the abnormal returns of the acquiring and target firms.

Three potential (but not mutually exclusive) explanations for observed wealth changes from acquisitions associated with target firms' excess pension assets are investigated: transfers of wealth from labor to target firms' shareholders resulting from the violation of implicit labor contracts; market participants' expectations that the post-acquisition firms will terminate the plans and use the surplus to fund positive net present value projects; and transfers of wealth from acquiring to target firms' shareholders, motivated by the incentive of managers to accumulate free cash flows.

The next section provides background on overfunding of defined benefit plans. This is follwed by a discussion of the theory behind each of the research issues addressed in the study and a description of the data and methodology. Finally, the last two sections present the results and the conclusions.

Accumulation of Excess Pension Assets

Excess, or surplus, pension assets represent the difference between the market value of assets held by a pension plan and the present value of the obliga-

[1] Also, overfunded pension plans may create debt capacity because the plan could be used as a quasi sinking fund.

tions to the plan's beneficiaries. Actuarial gains (e.g., higher returns than previously expected on plan assets or a variance between other actuarial assumptions and realizations) are the source of the surpluses. Corporations may avail themselves of these surpluses in a variety of ways. First, excess pension assets will revert back to the firm if the plan is terminated (Employee Retirement Income Security Act of 1974 [ERISA], Section 4044(d)(1)). Second, the firm can adjust its actuarial assumptions, thus lowering the amount of future contributions over a 15-year period. Third, a firm may reduce its pension liabilities by violating an implied contract with its employees, promising pension benefits greater than those promised in the explicit pension contract.

Black (1980a, 1980b) and Tepper (1981) present an economic argument for accumulating liquid assets through pension plan overfunding. Both authors describe a tax arbitrage opportunity analogous to the sale of debt, thereby incurring tax deductible interest costs, and contributing the proceeds to the pension plan. The contributions are tax deductible and invested to earn the pretax rate of return. If the contributions are invested in securities with the same level of risk as the firm's debt, the after-tax cash flows are increased without incurring additional risk. This type of strategy does not violate the Employee Retirement Income Security Act of 1974 (ERISA) Section 404(a), which stipulates that pension plans should be managed for the purpose of providing benefits and be adequately diversified. Therefore, it is not surprising that throughout the 1980s many defined benefit plans became overfunded.[2]

Pricing Effects of Excess Pension Assets in Acquisitions

Violation of Implicit Labor Contracts

The language of ERISA and subsequent legal decisions support the position that excess pension assets are the property of the shareholders. However, Shleifer and Summers (1988), VanDerhei (1987), Ippolito (1985), Ippolito and James (1992), and Mittelstaedt and Regier (1993) argue that firms can violate implicit labor contracts by altering the nature of the pension obligation. The violation of these implicit contracts results in a transfer of wealth from labor to shareholders.

Ippolito (1985) presents the life-cycle theory of wages and benefits, where workers enter an implicit contract over their life cycle, making them, in effect, bondholders of the firm. His empirical results support the view that the firm and its workers have an implicit arrangement, whereby the firm promises not to terminate the plan and satisfy its obligations with fixed dollar individual annuities. Instead, labor expects management to use the excess pension assets to provide inflation-indexed economic pension benefits. Ippolito states that, "If workers accept lower wages in anticipation of receiving real benefits . . . then

[2] Analysts estimate that 80 percent of defined benefit plans are overfunded by a total of $600 billion (*Wall Street Journal*, June 4, 1990, p. B1).

voluntary termination of the plan—triggering payment of terminated benefits instead of real benefits—breaks the implicit contract, imposing large capital losses on workers" (p. 30). If the firm has an implicit contract to maintain the plan and pay indexed pension benefits, regardless of its legal right to terminate, the economic pension liability will exceed the legal pension liability. In this case, the excess pension assets available to shareholders will, at least partially, consist of transfers of wealth from labor.[3]

Shleifer and Summers (1988) develop a theory explaining how transfers of wealth from labor to target firms' shareholders would be prevalent in hostile takeovers. Their contention, which is consistent with Ippolito (1985), is that firms make long-term contracts with labor to induce individuals into making relationship-specific investments in the firm. Because of the idiosyncratic nature of these commitments, such contracts are implicit rather than explicit.

Shleifer and Summers argue that, by honoring these implicit labor contracts, incumbent management becomes entrenched and will resist takeover attempts. However, it may be wealth maximizing for the post-acquisition management to expropriate wealth from labor by violating these implicit contracts. Shleifer and Summers conclude that wealth transfers from labor to target firms' shareholders will be most evident in hostile takeovers.

There is some evidence of wealth transfers from labor to shareholders resulting from defined benefit plan terminations and reversions. Petersen (1992) defines the pension bond as the amount of wages and benefits foregone in the early years of employment in return for pension benefits. By examining terminations on a plan-by-plan basis, he finds that the propensity to terminate an overfunded defined benefit plan is positively related to the value of the pension bond. Studying the form of the replacement plan adopted after termination, Mittelstaedt and Regier (1993) find that wealth transfers occur when the replacement plan does not allow for cost-of-living adjustments for retirees or for anticipated salary increases for current workers. Empirical findings by VanDerhei (1987) provide evidence that both financial considerations and violation of wage contracts contribute to abnormal returns on the announcement of reversions. However, Thomas (1989), also studying reversions, finds no evidence of implicit contract violations.

Although some evidence supports the view that reversions may serve to transfer wealth from labor to shareholders, the evidence of wealth transfers facilitated through corporate acquisitions is less conclusive. Mitchell and Mulherin (1989) compare reversions following takeover activity with those that are unrelated to takeover attempts. They conclude that terminations are not

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[3] Another welfare loss to labor resulting from pension terminations is the loss of insurance through the Pension Benefit Guarantee Corporation (PBGC). The individual annuities that replace the pension promise of the firm are not insured, except for limited coverage in some life and health insurance guaranty associations. For annuities that back employer-sponsored pension plans, the latter guarantees may be a weak substitute for PBGC coverage. Therefore, financial risk is transferred from the PBGC to the holder of the annuity.

related to takeover activity, hostile takeovers do not facilitate transfers of wealth from labor to shareholders, and acquisition premiums are not related to the amount of the reversion.

Bowers, Christea, and Mittelstaedt (1994) and Pontiff, Shleifer, and Weisbach (1990) also attempt to measure wealth transfers from labor to shareholders by examining the relation between pension reversions and acquisition premiums. Both studies find that excess pension assets can constitute a significant portion of acquisition premiums but, in general, are not the primary source of takeover gains.[4] However, they also find that reversions account for a significantly greater portion of the premiums in hostile takeovers.

When implicit labor contracts are violated, positive returns to acquiring or target firms may represent a transfer of wealth from labor to shareholders. These transfers should be most prevalent in hostile takeovers. Therefore, if implicit contracts are violated, greater abnormal returns are expected to be associated with overfunded plans in resisted takeovers.[5]

Financial Slack

Several authors (Petersen, 1992; Mittelstaedt, 1989; Thomas, 1989; VanDerhei and Harrington, 1989; and Stone, 1987) postulate that excess pension assets function as a source of financial slack in the manner described by Myers and Majluf (1984). The ability to extract the excess pension assets through either plan termination or a reduction in future funding represents an alternative to issuing new equity or debt to meet the firm's capital needs. If overfunded defined benefit plans are considered an alternative source of capital, one interpretation of previous studies that find positive abnormal returns associated with excess pension asset reversions (Haw, Ruland, and Hamdallah, 1988; VanDerhei, 1987; and Alderson and Chen, 1986) is that terminations signal that the assets reverting to the firm will be put to a higher valued use.

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[4] Pontiff, Shleifer, and Weisbach (1990) find that, on average, excess pension assets account for 10 percent to 13 percent of takeover premiums. Bowers, Cristea, and Mittelstaedt (1994) find wealth transfer/premium ratios in the range of 20 to 24 percent. These results regarding the relation between pension reversions and wealth transfers are consistent with the evidence concerning wage concessions in general. Rosett (1990) finds that, in the six years following a takeover, union wage concessions only explain 1 to 2 percent of takeover premiums. However, he notes that the takeover population is quite diverse, and in some cases over longer periods of time wage concessions may constitute up to 25 percent of takeover gains.

[5] Evidence of violation of implicit labor contracts would consist of a relation between abnormal returns and managerial resistance to the takeover. If there are no other potential bidders and the hostile acquisition is the only method of violating these contracts, the target will have to share the transfer of wealth from labor with the acquirer's shareholders in order to induce the acquirer to complete the acquisition. Therefore, under these market conditions, if implicit contracts are violated, a relation would exist between both acquirer and target abnormal returns and resistance. However, if there are other potential acquirers, competition in the market for target firms may allocate all of the wealth transfered from labor to the target firms' shareholders. In this situation, a relation between only the target's abnormal returns and resistance would provide evidence of violation of implicit contracts.

Empirical evidence reported by Mittelstaedt (1989), Thomas (1989), VanDerhei and Harrington (1989) and Stone (1987) indicates that excess pension assets may function as financial slack. Mittelstaedt finds that terminations of overfunded pension plans are associated with financial weakening and capital constraints. Consistent with Mittelstaedt's results, Thomas finds that pension plan reversions usually follow a large unexpected decline in cash flows and are initiated only after other relatively desperate measures (e.g., dividend reductions) have been taken. VanDerhei and Harrington examine financial slack and violation of implied contracts with regard to pension plan reversions and find evidence that excess pension assets function as financial slack. Stone finds that highly leveraged firms that generate a low level of internal funds are more likely to terminate overfunded plans.

Similarly, a portion of the positive abnormal returns associated with acquisition announcements may reflect the possibility that the target firm's excess pension assets may be put to higher use by the post-acquisition firm (i.e., invested in positive net present value projects). Corporate acquisitions may be motivated by the existence of excess pension assets through the opportunity to improve the management of, or provide increased investment opportunities for, these surplus assets. Therefore, excess pension assets constitute a potential source of capital for acquiring firms (financial slack).[6] Ceteris paribus, if excess pension assets function as financial slack, target and combined firm abnormal returns associated with acquisition announcements should be greater when the target's pension plan is overfunded.

Managerial Motivations

Jensen (1986) argues that managers may be motivated to accumulate cash to maximize the resources under their control and to avoid monitoring by the capital markets. Further, managers have incentives to invest in negative net present value projects after all positive net present value projects have been exhausted, because both the managers' power and compensation are positively associated with growth in sales (Murphy, 1985).

Lang, Stulz, and Walkling (1989) provide some empirical evidence for Jensen's (1986) free cash flow hypothesis as it applies to acquisitions. They find that bidders with high cash flow positions and low Tobin's Q values (low valued investment opportunities) earn lower abnormal returns than other acquirers. However, Lang, Stulz, and Walkling do not examine the target firm's cash flow position.

Target firms' excess pension assets are a source of cash to the post-acquisition firm. If bidders acquire these assets to accumulate free cash flows, there

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[6] Concern that targets firms' excess pension assets may be the primary motive for some takeover attempts has been the focus of several articles in the financial press (e.g., Hawthorne, 1983; Burr, 1985; Asinof, 1985). Also, some firms adopt pension parachutes to deny acquirers access to the surplus (e.g., American Hospital Supply Company, Great Atlantic and Pacific Tea Company, Sun Company, and Union Carbide). In 1987, legislation was proposed to prohibit acquirers from using excess pension assets to finance acquisitions (Mitchell and Mulherin, 1989).

should be no positive revaluation of pension assets. Also, if excess pension assets are acquired to accumulate free cash flows, agency costs to the shareholders of the post-acquisition firm are increased. Therefore, in the context of this study, evidence of Jensen's free cash flow hypothesis would consist of a positive relation between excess pension assets and target abnormal returns and a negative relation between excess pension assets and bidder and combined firms' abnormal returns.

Methodology

Data

The sample comprises acquiring and target firms involved in acquisitions occurring during the period 1979 through 1988 (see Table 1). The target firms are those identified in the Center for Research in Security Prices (CRSP) data base as having been acquired during this period. Pairs of acquiring and target firms are included in the sample if the following criteria are met: (1) The target firm's pension assets and liabilities must be available in the annual report prior to the acquisition announcement and disclosed in accordance with Financial Accounting Standard Board (FASB) Statements No. 36 or No. 87;[7] (2) information concerning the announcement date of the acquisition proposal, any resistance to the proposal, and competing offers must be available in the *Wall Street Journal;* and (3) the accepted offer is either pure cash, pure common stock, or a combination of cash and common stock. These selection criteria result in a sample of 150 pairs of target and corresponding acquiring firms.

Seventy-three (48.7 percent) of the target firm's pension plans were overfunded. Of these, target management resisted the takeover in 23 (31.5 percent) cases.[8] For non-overfunded targets, resistance to the proposal was encountered in 19 of 77 proposals (24.7 percent). Competing offers were outstanding in 58 (38.7 percent) of the 150 proposals. Thirty-four (46.6 percent) of the overfunded target firms had competing bids, compared with 24 (31.2 percent) of the non-overfunded targets. Cash was the medium of exchange in 71 (47.3 percent) proposals. Of the overfunded targets, cash was the medium of exchange for 38 (52.0 percent). For the non-overfunded targets, cash was the medium of exchange in 33 (42.9 percent).

Excess pension assets may be a proxy for some other attribute valuable in acquisitions. Table 2 presents a comparison of the mean values of wealth ef-

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[7] Although FASB No. 36 and FASB No. 87 measures of net pension assets are not the exact amount of pension surplus or liability, these data constitute the information set available to market participants (Feldstein and Seligman, 1981). Similar measures of net pension assets have been used by Thomas (1989), VanDerhei (1987), Landsman (1986), and Daley (1984).

[8] Any mention of managerial resistance or opposition in the *Wall Street Journal* during the period between the announcement of the offer and the delisting of the target firm is considered a resisted proposal. Also, a competing offer is considered to exist if any confirmed offer is outstanding at the time of announcement or made by another bidder during the period before delisting.

Table 1
Acquiring and Target Firms Involved in Acquisitions from 1979 Through 1988: Data Summary

		Target Firms with		
	Full Sample	*Overfunded Plans*	*No Defined Benefit Plan*	*Underfunded Plans*
Number of Acquisitions	150	73	42	35
	Mean Values			
Target Firm Net Pension Assets (in millions of dollars)				
Total Net Pension Assets	$22.395	$62.025	$0.000	$-33.387
Net Pension Asset/Share	$ 0.657	$2.560	$0.000	$-1.474
Market Value of Equity (in millions of dollars):[a]				
Target Firms	$930.382	$1305.142	$459.266	$714.080
Acquiring Firms	$3532.605	$3874.217	$4070.868	$2174.186

[a] Market value and pre-announcement prices are measured 40 days prior to the acquisition announcement in the *Wall Street Journal*.

Table 2
Univariate Analysis of Measures of Incremental Wealth and Acquisition Premiums

	Mean Values			
	Full Sample (N = 150)	*Overfunded (N = 73)*	*Non-Overfunded[a] (N = 77)*	*t-Statistic[b] for Difference*
Premium Accepted by Target Firm				
$ Premium	12.160	14.433	10.012	2.581**
% Premium	0.482	0.520	0.445	1.284
Abnormal Returns (t-Statistic)[c]				
Acquiring Firms (CAR_A)	-0.016*	-0.014**	-0.018*	0.409
	(-3.470)	(-2.235)	(-2.643)	
Target Firms (CAR_T)	0.188*	0.199*	0.177*	0.747
	(12.972)	(9.215)	(9.105)	
Combined Firm ($CHRT_M$)	0.042*	0.054*	0.030*	1.701***
	(5.819)	(4.812)	(3.370)	

Note: $ Premium = difference between the dollar value of the offer accepted by the target firm and market price of the target firm's stock 40 days prior to the announcement of the acquisition in the *Wall Street Journal*, % Premium = $ Premium divided by the pre-announcement price of the target firm, CAR = cumulative abnormal returns for days [-5, 0], and CHRT = sum of the cumulative abnormal dollar returns for the acquiring and target firms over the interval [-5, 0] divided by the sum of the pre-announcement market values of equity of the acquiring and target firms.

[a] Non-overfunded sample includes target firms with either underfunded or no pension plan.
[b] The t-statistics are adjusted for unequal variances for Premium and $CHRT_M$.
[c] Null hypothesis: Variables are not statistically different from zero.

* Significant at the 1 percent level.
** Significant at the 5 percent level.
*** Significant at the 10 percent level.

fect measures, profitability changes, and offer premiums for target firms with both overfunded and non-overfunded pension plans. The mean dollar premium and combined firm holding period return are greater for those acquisitions where the targets' plans are overfunded. The average percentage change in net operating income is less for targets with overfunded plans (significant at the 10 percent level). No significant differences appear elsewhere, indicating no relation between profitability measures and funding status or amount of over- or underfunding.

Abnormal Returns

The market valuation of excess pension assets is examined by analyzing the association of acquirer and target abnormal returns with the targets' net pension assets. The abnormal return for security j for a given day t is calculated as

$$AR_{j,t} = \alpha_j + \beta_j(R_{j,t} - R_{m,t}), \quad (1)$$

where $AR_{j,t}$ = abnormal return for security j on day t,
$R_{j,t}$ = return on security j on day t,
$R_{m,t}$ = return on the equally-weighted CRSP index on day t,
β_j = Scholes-Williams beta for security j, and
α_j = Scholes-Williams intercept for security j.

The beta and intercept for security j are estimated over a period of 140 days, beginning 200 days prior to the acquisition announcement in the *Wall Street Journal* using a technique outlined by Scholes and Williams (1977).

The association between abnormal returns and excess pension assets is investigated using the following regression equation:

$$CAR_j = \beta_0 + \beta_1(FS) + \beta_2((FS)(NPA/P_0)) + \beta_3((RESIST)(NPA/P_0)) + \beta_4(RESIST) + \beta_5(D86) + \beta_6(CASH) + \beta_7(COMP) + \beta_8(TVAL) + \varepsilon, \quad (2)$$

where CAR = cumulative abnormal return over the interval [-5,0] where day 0 is the announcement in the *Wall Street Journal,*
FS = dichotomous variable for funding status, equal to 1 when the market value of the target firm's pension plan assets exceeds the present value of the obligations due beneficiaries, 0 otherwise,
NPA = target firm's net pension assets per share, defined as the difference between the market value of assets held by a pension plan and the present value of the obligations due beneficiaries, divided by the number of shares outstanding,
P_0 = pre-announcement price of the target firm (measured 40 days prior to the announcement of the proposal),
RESIST = dichotomous variable equal to 1 when both the target's pension plan is overfunded (i.e., FS is equal to 1) and the target resisted the bidder's offer, 0 otherwise,

D86 = dichotomous variable equal to 1 when both the target's pension plan is overfunded (i.e., FS is equal to 1) and the acquisition is announced after January 1, 1986, 0 otherwise,

CASH = dichotomous variable equal to 1 when the medium of exchange is 100 percent cash, 0 otherwise,

COMP = dichotomous variable equal to 1 when there is a competing offer for the target firm, 0 otherwise, and

TVAL = pre-announcement market value of target firm's equity in thousands of dollars.

A significant, positive value for β_1 (FS) would be consistent with Ippolito and James's (1992) contention that the existence of excess pension assets alone represents a propensity to violate implicit contracts. A significant, positive value for β_2 ((FS)(NPA/P_0)) indicates that bidding and/or target shareholders benefit from the magnitude of the target's excess pension assets.

A significant, positive value for β_3 ((RESIST$_j$)(NPA$_j$/P_0)) would support Shleifer and Summers's (1988) argument that, while the incumbent management has become entrenched by honoring the implicit contracts, it is value maximizing for the post-acquisition management to break these contracts. If violation of implicit labor contracts motivates management to undertake hostile acquisitions, the amount of wealth available to expropriate from labor (target firm's net pension assets) should be positively related to the cumulative abnormal returns of target firms in resisted acquisitions. Therefore, a significant, positive coefficient β_3 ((RESIST$_j$)(NPA$_j$/P_0)) would be consistent with the joint hypothesis that implicit contracts are violated and the violations are more likely in resisted takeovers.

Several control variables (D86, RESIST, CASH, COMP, and TVAL) are included to account for other factors affecting abnormal returns. The dichotomous variable D86 is included to capture any effects due to changes in the tax law during the sample selection period. For example, the Tax Reform Act of 1986 subjected reverted pension assets to corporate and excise taxes (effective for reversions occurring after December 31, 1985).[9] The full funding limitation of the 1987 Omnibus Budget Reconciliation Act, affecting pension contributions made after January 1, 1987, limits the amount of deductible contributions to 150 percent of liabilities. Although firms can avoid the excise tax provision of the Tax Reform Act of 1986 (and subsequent revisions) by changing actuarial assumptions, Petersen (1992) and Alderson and VanDerhei (1992) find that the frequency of terminations decreased as a result of the initiation of excise taxes in 1986. A significant, negative sign for D86 implies that incremental

[9] Alderson and VanDerhei (1992) discuss changes in tax laws regarding pension reversions. Subsequent revisions in the corporate tax law have increased the excise tax. As of the Omnibus Budget Reconciliation Act of 1990, the excise tax is 20 percent if any of the following conditions are met: 25 percent of the recovered assets are transfered to a plan covering 95 percent of the employees, 20 percent of the recovered assets are used to provide benefit increases, or the employer is in bankruptcy. Otherwise the excise tax is 50 percent.

taxes and/or the full funding limitation reduce the value of the excess pension assets in acquisitions.[10]

The dichotomous variable CASH is included to control for any signaling effects associated with the medium of exchange. Travlos (1987) and Fishman (1989) provide evidence that cash offers are a positive signal relative to other methods of payment. Target firm resistance to the tender offer (RESIST) (Huang and Walkling, 1987), competing offers (COMP) (Bradley, Desai, and Kim, 1983) and the market value of the target firm (TVAL) (Jarrell and Poulsen, 1987) have been found to be positively related to abnormal returns in acquisitions.

Cumulative abnormal returns measure the separate wealth effects for the acquiring and target firms' shareholders, but cumulative abnormal dollar returns are needed to measure the incremental wealth of the resulting merged firm.[11] The sum of the cumulative abnormal dollar returns for the acquiring and target firms are divided by the total pre-announcement market value of equity of the acquiring and target firms. The resulting metric, $CHRT_j$, represents the total wealth effect expected from the acquisition. The association between abnormal dollar returns and excess pension assets is investigated using the following regression equation:

$$CHRT_j = \beta_0 + \beta_1 (FS) + \beta_2 ((FS)(TNPA)) + \beta_3 ((RESIST)(TNPA)) + \beta_4 (RESIST) + \beta_5 (D86) + \beta_6 (CASH) + \beta_7 (COMP) + \beta_8 (TVAL) + \varepsilon, \quad (3)$$

where CHRT = sum of the acquiring and target firms' cumulative abnormal dollar returns for days [-5,0] divided by the sum of the pre-announcement market values of equity of the acquiring and target firms. Day 0 is the day the acquisition is announced in the *Wall Street Journal,*

TNPA = target firms' total net pension assets divided by the sum of the pre-announcement market values of equity of the acquiring and target firms, and

All other variables are as previously defined in equation (2).

An examination of the total gains will indicate whether there is a net gain to the shareholders or whether the bidding firm managers' desire for free cash flows induced them to overpay for excess pension assets (Jensen, 1986). For example, a negative relation between excess pension assets and CHRT and a positive relation between excess pension assets and target abnormal returns would indicate a transfer of wealth to the target firms' shareholders from either labor or the bidding firms' shareholders.

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[10] To isolate the effects of the Omnibus Budget Reconciliation Act of 1987, the analysis was replicated using a dummy variable equal to 1 when the acquisition was announced after January 1, 1987. The results are virtually identical to those presented in Table 3.

[11] Abnormal returns are converted into abnormal dollar returns by multiplying them by the firm's market value of equity at the beginning of each day.

Results

Before presenting the regression results, it is interesting to examine the univariate analysis of incremental wealth measures and offer premiums (see Table 2). The mean dollar premium ($Premium) and combined firm holding period return (CHRT) are greater for those acquisitions where the targets' plans are overfunded. However, these are the only two variables where significant differences are found.

The analysis of cumulative abnormal returns indicates that excess pension assets function as financial slack and that the market revalues these assets on the announcement of acquisition proposals (see Table 3). The coefficient β_2 is positive and significant (at the 1 percent level) for both the target firm and combined firm regressions. However, the coefficient for this variable is not significant in the regressions for acquiring firms. These results indicate that the bidding process allocates all the gains associated with the excess pension assets to the target firm's shareholders.

There is no strong evidence that management accumulates free cash flows (Jensen, 1986) through the acquisition of excess pension assets or that the acquisition of excess pension assets is detrimental to acquiring firms' shareholders. The coefficients β_1 (FS) and β_2 ((FS)(NPA/P_0)) are negative but not significant. Also, there is no evidence that violation of implicit contracts transfers wealth from labor to shareholders in resisted takeovers. The coefficients β_1 (FS) and β_3 ((RESIST)(NPA/P_0)) or ((RESIST)(TNPA)) are not significant in any of the regressions.[12]

Finally, neither the Tax Reform Act of 1986 or the 1987 Omnibus Budget Reconciliation Act materially affects the pricing of excess pension assets in acquisitions. The predicted sign for β_5 is negative; however, the coefficient is positive in all three equations and significant (at the 10 percent level) for target firms. Therefore, the positive coefficient for the dichotomous variable D86 indicates that this variable is not capturing the effects of either the Tax Reform Act of 1986 or the 1987 Omnibus Budget Reconciliation Act.

The results of an examination of the relation between excess pension assets and takeover premiums on the announcement of acquisition proposals support

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[12] A reviewer pointed out that the results may be due to the "weak firm" effect (i.e., that funding status serves as a proxy for profitability) and therefore, strong firms will command greater abnormal returns. To control for such a relation, Tables 2 and 3 were replicated for a subsample of 101 target firms for which profitability data are available on Compustat. Two measures of target profitability are incorporated into the analysis: average percentage change in net income (ΔNI) and average percentage change in net operating income (ΔNOI) for the five years preceding the announcement. Comparing the profitability measures for over- and underfunded pension plans, the results show that ΔNOI is less for targets with overfunded plans (significant at the 10 percent level). The multivariate analysis including the profitability measures produced similar results to those presented in Table 3. The coefficients for ΔNI and ΔNOI are not significant. Also, the only variables significantly correlated with the profitability measures are market value of target equity and total net pension assets. These results are available from the authors upon request.

Table 3
Changes in Shareholder Wealth Associated with Excess Pension Assets
(t-statistic)
N = 150

Panel A: Analysis of Abnormal Returns and Net Pension Assets as a Percentage of Share Price

$CAR_j = \beta_0 + \beta_1(FS) + \beta_2((FS)(NPA/P_0)) + \beta_3((RESIST)(NPA/P_0)) + \beta_4(RESIST) + \beta_5(D86) + \beta_6(CASH) + \beta_7(COMP) + \beta_8(TVAL) + \varepsilon$

Dependent Variable	*Intercept*	*FS*	*(FS)(NPA/P_0)*	*(RESIST)(NPA/P_0)*	*RESIST*	*D86*	*CASH*	*COMP*	*TVAL*	*Adjusted R2*	*F Statistic*
CAR_A	-0.033*	-0.001	-0.001	-0.158	0.010	0.015	0.030*	-0.001	0.000	0.031	1.590
	(-3.926)	(-0.091)	(-0.025)	(-0.811)	(0.753)	(0.933)	(3.113)	(-0.102)	(0.130)		
CAR_T	0.144*	-0.019	0.211*	-0.566	0.065***	0.100**	0.830*	-0.048	-0.000	0.158	4.494a
	(5.936)	(-0.586)	(2.918)	(-1.014)	(1.781)	(2.370)	(3.046)	(-1.637)	(-0.703)		

Panel B: Analysis of Combined Firm Wealth and Total Net Pension Assets

$CHRT_j = \beta_0 + \beta_1(FS) + \beta_2(FS \times TNPA) + \beta_3(RESIST \times TNPA) + \beta_4(RESIST) + \beta_5(D86) + \beta_6(CASH) + \beta_7(COMP) + \beta_8(TVAL) + \varepsilon$

Dependent Variable	*Intercept*	*FS*	*(FS)(TNPA)*	*(RESIST)(NPA/P_0)*	*RESIST*	*D86*	*CASH*	*COMP*	*TVAL*	*Adjusted R2*	*F Statistic*
$CHRT_M$	0.005	-0.015	0.873*	0.464	0.020	0.024	0.047*	-0.012	0.000	0.184	5.198*
	(0.465)	(-0.919)	(2.916)	(0.634)	(1.142)	(1.150)	(3.529)	(-0.849)	(1.487)		

Note: CAR = cumulative abnormal return over the interval [-5,0] where day 0 is the announcement in the *Wall Street Journal*, CHRT = sum of the acquiring and target firms' cumulative abnormal dollar returns for days [-5,0] divided by the sum of the pre-announcement market values of equity of the acquiring and target firms, FS = dichotomous variable equal to 1 when the target firm's pension plan is overfunded, 0 otherwise, NPA = target firm's net pension assets per share, P_0 = target firm's pre-announcement share price, TNPA = target firm's total net pension assets divided by the sum of the pre-announcement market values of equity of the acquiring and target firms, RESIST = dichotomous variable equal to 1 when both the target's pension plan is overfunded and the target resisted the bidder's offer, 0 otherwise, D86 = dichotomous variable equal to 1 when both the target's pension plan is overfunded and the acquisition is announced after January 1, 1986, 0 otherwise, CASH = dichotomous variable equal to 1 when the medium of exchange is 100 percent cash, 0 otherwise, COMP = dichotomous variable equal to 1 when there is a competing offer for the target firm, 0 otherwise, and TVAL = pre-offer market value of target's equity in thousands of dollars.

* Significant at the 1 percent level. ** Significant at the 5 percent level. *** Significant at the 10 percent level.

those found in the abnormal return analysis. Acquisition premiums are, on average, higher for firms possessing excess pension assets and are positively related to the magnitude of the excess pension assets. There is no evidence that higher premiums are associated with excess pension assets held by target firms involved in resisted acquisitions.

Conclusions

The empirical evidence presented in this article supports the following conclusions: First, there is a positive relation between excess pension assets and target firm and combined firm abnormal returns, indicating that the market revalues excess pension assets on the announcement of acquisition proposals. However, no relation is found between target firms' excess pension assets and acquiring firms' abnormal returns.

Second, the positive relation between target firms' excess pension assets and combined firms' returns, and the lack of relation between the targets' excess pension assets and the acquiring firms' returns, indicates that pension assets are positively revalued in acquisitions and that the bidding process allocates the majority of the repricing to the target firms' shareholders. The evidence is consistent with the view that excess pension assets function as financial slack in acquisitions and that market participants revalue these assets in anticipation of the post-acquisition firm putting them to a higher valued use.

Third, no significant relation indicates that acquisition of a firm possessing excess pension assets is motivated by management's desire to accumulate free cash flows in a manner detrimental to the acquiring firms' shareholders' wealth. Finally, there is no relation between abnormal returns and excess pension assets in resisted acquisitions. Therefore, the results do not support the contention that violation of implicit contracts transfers wealth from labor to shareholders in hostile takeovers.

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