

Corporate partial acquisitions, total firm valuation and the effect of financing method

Sudip Datta ^{a,*}, Mai E. Iskandar-Datta ^b

^a *Department of Finance, Bentley College, 175 Forest Street, Waltham, MA 02154, USA*

^b *Finance Research Associates, 15D Manning Road, Waltham, MA 02154, USA*

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Abstract

Previous studies on partial acquisitions focusing solely on stockholder wealth report mixed results about the valuation effect of these transactions. By examining the percent and dollar excess returns of the acquiring firm's bondholders and stockholders, this study is able to conclude unambiguously that partial acquisitions are, at best, value neutral. Our analysis indicates that any wealth loss suffered by the firm is completely absorbed by the bondholders. Moreover, by distinguishing between the pure effect of the acquisition (the investment decision) and the effect of the financing method, our findings show that there is a wealth redistribution from bondholders to stockholders associated with the method of financing used. Supporting our expectation, the results strongly indicate a preference structure for bondholders for acquisition financing.

Keywords: Acquisitions; Bondholder and stockholder wealth; Financing method; Firm valuation

JEL classification: G34

1. Introduction

The evidence on the valuation effects of mergers and acquisitions on the shareholders of the acquiring firms is inconclusive. Asquith and Kim (1982) and Asquith (1983), among others, find insignificant abnormal return to stockholders on the announcement of the acquisition, while Dodd and Ruback (1977) and Dodd

* Corresponding author. Tel. +1 (617) 891-2513.

(1980) find statistically significant abnormal gains. Mixed results are also obtained in partial acquisition studies. For example, Rosenfeld (1984) and Jain (1985) show that stockholders of the acquiring firms accrue a positive and significant abnormal return, while Zaima and Heath (1985) and Sicherman and Pettway (1987) document that they accumulate normal returns. The ambiguous results for acquiring shareholders could be due to the medium of exchange used in the acquisition and wealth transfer effects between the firm's securityholders.

Merger studies commonly propose three factors that contribute to the difference in the stock excess return associated with the medium of exchange (Gordon and Yagil, 1981; Asquith et al., 1983; Wansley et al., 1983, 1987; Travlos, 1987; Peterson and Peterson, 1991). They are the tax incidence effects due to the combination, the nature of the acquisition (hostile or friendly) and the signalling effect. Partial acquisitions present an ideal situation to focus exclusively on the effect of signalling by holding the tax incidence effects and the mood of the acquisition constant. The tax treatment is similar across these transactions because partial acquisitions are typically taxable to the seller and allow "stepping-up" of the depreciable basis of assets but no carryover of tax losses to the bidder. Additionally, these acquisitions are almost always initiated by the seller and are thus friendly. This study contributes to the literature by (1) examining the effect of partial acquisitions on both bondholders and stockholders, (2) investigating whether there is any wealth transfer between securityholders due to the *financing* decision, and (3) isolating the impact of signalling from tax incidence effect and the nature of the acquisition.

The ambiguous results obtained for acquiring shareholders in previous studies and the conspicuous lack of evidence on the wealth impact on bondholders makes it difficult to conclude whether partial acquisitions benefit acquiring firm claimholders. Moreover, increased firm value cannot automatically be inferred from an increase in shareholder wealth if the acquisition is debt-financed, since at least part of the increase in equity value may be offset by a reduction in the value of the firms' outstanding bonds. By failing to examine the implications to bondholders, previous studies may have misestimated the total firm valuation effect of a partial acquisition. If bondholders are impacted negatively by acquisitions while the stockholders experience only normal rates of return, then it is difficult to justify these acquisitions from a firm value perspective. On the other hand, if any positive abnormal returns earned by the stockholders come at the expense of the bondholders then such transactions may be value-neutral. In such a scenario, although the firm's value does not change, the bondholders are not indifferent to such transactions. Finally, if both stockholders and bondholders experience positive abnormal returns, then it can be deduced that such transactions are truly value-enhancing and the value created has been underestimated thus far by financial researchers.

Galai and Masulis (1976) argue that the bondholders may lose if the acquisition is financed by overleveraging which may increase their default risk. In addition to

the leveraging impact, information signalling through the financing decision has been proposed to play an important role on securityholder wealth (Hansen, 1987; Fishman, 1989; Brown and Ryngaert, 1991). It is conceivable that the acquisition per se may be value-enhancing and yet the financing method may have the opposite wealth effect thereby confounding the observed net wealth impact on each type of securityholder. Therefore, the interaction of the method of financing and the value generated by the acquisition is crucial in determining the wealth effects of such transactions on the respective securityholders. Hence, by distinguishing between the effect of the acquisition (the investment decision) and the effect of the financing method we are better able to measure unambiguously the true value generated by such acquisitions and identify the sources of gains or losses to each type of securityholder.

The next section discusses the differences in the nature of mergers and partial acquisitions. Section 3 presents some of the theories of acquisitions and the testable hypotheses. Section 4 details the sample selection procedure and identifies the data sources. The event study methodology is described in Section 5. The empirical results are presented in Section 6. Finally, Section 7 summarizes the implications and concludes the study.

2. Partial acquisitions versus mergers

There are several differences in the basic nature of a typical partial acquisition from that of a merger which make this study interesting. First, the nature of a partial acquisition is usually friendly (synergistic) and made at the initiation of the selling firm, while a merger transaction may be consummated under either a friendly or a hostile (disciplinary) environment. Morck et al. (1988) cautioned against analyzing a mixed sample of synergistic and disciplinary mergers with few common characteristics. Focusing exclusively on partial acquisitions enables us to circumvent this problem.

Second, there are two main methods of payment in mergers—shares in the acquiring or the combined firm and/or cash. In contrast, the method of payment in partial acquisitions is typically cash since the target is a unit of an entity that remains independent after the sale (Herz and Abahoonie, 1988). The impact of the tax incidence depends on the mode of payment. For stock exchange transactions, the selling firm's shareholders are not taxed and hence the bid premia that the acquiring firm has to pay is lower compared to cash acquisitions (Wansley et al., 1983). Another aspect of stock acquisitions is the usability of tax-loss carryforwards. However, the depreciable basis in such cases remains at the book value of the acquiree's assets. Cash acquisitions, on the other hand, are immediately taxable for the selling firm's shareholders and any tax-loss carryforward is lost. Cash acquisitions allow for some degree of "stepped-up" depreciable basis for tax purposes. Although the mode of *payment* in a partial acquisition is cash, the form

of *financing* the purchase may be stock, debt or internally generated cash. Given that the mode of payment in partial acquisitions is generally cash, the tax effects for all acquiring firms are thus held constant. Therefore, the financing method primarily reflects the impact of information signalling and the effect of any change in leverage.

Third, in mergers the debt obligations of the target are assumed by the merged entity. The relative leverage of the acquired firm to that of the acquirer are as important to acquiring securityholders as the method of financing the acquisition. But in partial acquisitions, the acquirer generally does not assume the debt obligations of the acquired entity and thus the method of financing reflects the total impact of any change in leverage. In addition, in a stock exchange merger the acquiring firm's bondholders may be impacted *even* when the leverage of the two entities is similar if the relative priority structure of the debt claims changes. Finally, partial acquisitions and mergers differ in the relative size of the acquirer and the acquiree. In most cases of partial acquisitions, the acquired assets are small relative to the acquirer while in mergers the size of the bidder and the target are more comparable.

3. Hypotheses relating to acquisitions of divested assets

In this section we postulate four hypotheses affecting the wealth of the bondholders and stockholders in a partial acquisition. The predicted impact on the

Table 1

Predicted effect of partial acquisitions on bondholders and stockholders under four alternative hypotheses

Panel A:

Hypotheses	Predicted effect on	
	bondholders	stockholders
Value enhancing hypothesis	positive	positive
Hubris hypothesis	negative	negative
Wealth transfer hypothesis	function of financing	function of financing
Signalling hypothesis	function of financing	function of financing

Panel B:

Financing method	Bondholders		Stockholders	
	wealth transfer	signalling	wealth transfer	signalling
Stock financing	positive	negative	negative	negative
Cash financing	unknown	positive	unknown	positive
Debt financing	negative	positive	positive	positive

wealth of the securityholders under each hypothesis is presented in panel A of Table 1.

Partial acquisitions may create value by redeploying assets to higher valued uses, thus increasing the post-acquisition cash flow to the firm. If the value-enhancing hypothesis holds, a positive wealth effect on both bondholders and stockholders is expected. In contrast, acquisitions may be attempts by managers to maximize growth and hence destroy value (*hubris hypothesis*). Even if the acquisition creates value, Roll (1986) argues that managers may overpay for the acquired units by bidding above their fair market value. In this case, acquisitions are value-destroying for the securityholders of the firm.

Two wealth effects can be attributed to the financing method used in the acquisition: (a) wealth redistribution due to the change in leverage, and (b) signalling effect due to the method of financing. A positive wealth impact on the acquiring stockholders may be primarily due to wealth redistribution arising from the method used to finance the acquisition. Debt-financed acquisitions can lead to a wealth redistribution from bondholders to stockholders if the new debt is senior to or *pari passu* with the existing debt.^{1,2} Stock financing reduces leverage, lowers the credit risk of existing debt and the option value component of equity. All other things being equal, stock-financed acquisitions will transfer wealth to creditors. An example of a leverage increasing transaction is:

“Great Northern Nekoosa Corp. agreed to pay \$1.15 billion to buy the forest products group of Owens–Illinois Inc. Standard and Poor’s Corp. put Great Northern debt securities on the CreditWatch list for possible downgrading. The credit rating concern said that if the purchase is entirely debt-financed it will raise Great Northern debt to nearly 60% of total capital from 26%.” (*Wall Street Journal*, 7/17/87, p. 2)

The wealth transfer hypothesis also implies that the acquisition may result in a zero net present value transaction creating wealth for one class of securityholders at the expense of the other.³

¹ Recent studies examining leveraged buyouts have found significant wealth transfer from bondholders due to increase in leverage (Asquith and Wizman, 1990; Warga and Welch, 1991).

² For mergers, a commonly advanced benefit to bondholders is the co-insurance effect where the post-acquisition cash flow variance of the acquirer might be reduced resulting in increased debt capacity (Lewellen, 1971; Higgins and Schall, 1975). This would lead to a wealth transfer from stockholders to bondholders. However, in general the fraction of assets acquired, in the case of mergers, is much greater than that in partial acquisitions. Therefore, a priori it is expected that the co-insurance effect would be less important in this case. Furthermore, the majority of our sample firms acquire related assets for which the variance of cash flow is not expected to change significantly.

³ The failure of Kim and McConnell (1977) and Asquith and Kim (1982) to report significant effect on bondholders in the case of conglomerate mergers could be due to their ignoring the effect of the financing method.

In addition to the form of financing, the acquisition typically represents an investment which alters the variability of the firm's cash flows. If the variability of the cash flow increases with the new investment then there is a transfer of wealth from bondholders. The opposite occurs if the variability of the firm decreases with the acquisition (co-insurance effect). The financing decision may depend on the effect the investment has on the post-acquisition cash flows. Concern over expected future bankruptcy costs may lead the firm to finance a very risky acquisition with stock. Conversely, a less risky acquisition is more likely to be debt-financed. Hence it is expected that the endogeneity of the financing and investment decision will tend to mitigate the differences between equity and debt returns across debt versus stock deals.

Finally, the mode of acquisition may signal private information about the value of the assets in place or synergies from combination (see Eckbo et al., 1987; Hansen, 1987; Fishman, 1989; Brown and Ryngaert, 1991). All other things being equal, this implies that both debt and equity announcement returns should be higher in cash- and debt-financed acquisitions and lower in stock acquisitions (*signalling hypothesis*).

Panel B of Table 1 summarizes the expected wealth effects of the financing method on the acquiring firm's securityholders. Since debt financing is a leverage increasing transaction, it may be viewed as bad news for the bondholders and good news for the stockholders. As argued above, the effect of stock financing is clearly negative on stockholders because of its deleveraging and signalling implications. However, for bondholders the leverage effect is clearly positive but the negative signalling effect introduces a certain degree of ambiguity. This ambiguity about the net effect of stock financing on bondholders will be resolved empirically in this paper. Finally, the signalling effect of cash-financed acquisitions on both securityholder groups is positive. A substantial body of literature develops the basic adverse selection problem in Myers and Majluf (1984) which derive signalling models of the mode of acquisition that obtain the result that cash offers signal-favorable private information about the value of the assets in place or synergies from combination. There is considerable evidence consistent with this prediction of these models (see Eckbo et al., 1987; Hansen, 1987; Fishman, 1989). However, it is possible that higher stock returns to cash bidders represent a wealth transfer from bondholders. Examination of the impact of cash financing on both securityholders will enable us to empirically test this wealth transfer argument.

An acquisition of divested assets can be financed by debt, stock, cash (internal funds) or a combination of these. Although several studies focusing on mergers have tried to identify the effect of the method of *payment* on shareholders of the acquiring firm, only Travlos (1987) examines the impact on bondholders. In general, the empirical results from merger studies consistently find that stock offers are value-destroying to bidding stockholders, while cash offers have either no effect or a positive effect on stockholders. Franks et al. (1988) find that in all-cash offers the bidder stockholders earn a significant positive gain in the event

month (2%), while in all-equity offers they experience a significant loss of -0.9% . For a sample of mergers completed between 1972 and 1981, Travlos (1987) finds that for stock exchange offers, the bidding firm's stockholders and bondholders experience significant losses around the announcement period, while in cash offers both securityholder groups experience normal returns. Peterson and Peterson (1991) find that the allocation of wealth changes between targets and acquirers does not differ by medium of exchange, rather the relative size of the two entities is the main determinant of the distribution of wealth gains. Wansley et al. (1983) examine the impact of the medium of exchange on the acquiree's stockholders and find that stock premia are greater in a cash acquisition relative to stock exchange transactions.

4. Sample

4.1. Sample selection and description

A preliminary sample of partial acquisitions completed between January 1982 and December 1990 was collected from *Mergers and Acquisitions*. This journal reports the 25 largest partial acquisitions completed in a given year with the names of the seller, the buyer and the divested unit for each transaction as well as the dollar value of the sale. We restrict our sample to large transactions because they have been shown to have a stronger effect on share prices⁴ and the firms involved in large acquisitions are more likely to have publicly traded debt.

Observations were deleted from the initial sample of 225 large acquisitions over the nine-year study period for the criteria presented in Table 2. In our sample, 22 events were eliminated because of the absence of publicly traded straight debt, while 31 of them were deleted because of "thin" trading. A bond is defined to be thinly traded if there are less than eight trades during the 21-day event window. Additionally, a bond has to trade before and after the announcement day to be included in the sample. The rest of the reasons for elimination from the sample are self-explanatory from the table. The final sample contained 63 acquisition announcements made by 43 different firms.

Table 3 presents a description of the sample. In panel A, the distribution of the acquisitions by the year of announcement is presented. Examining the rating distribution of the sample bonds in panel B, we find that 56 of the 63 bonds (88.9%) are investment grade with a rating of Baa or better. Panel C presents (a) the average fraction of assets acquired relative to the market value of the acquiring firm, and (b) the average dollar amount of the acquisitions for different quartiles.

⁴ See Miles and Rosenfeld (1983) and Healy et al. (1992).

Table 2
Selection of 63 partial acquisitions, 1982-1990

	Number of firms
Initial sample ^a	225
Reasons for elimination from sample:	
No public straight debt	22
Public debt thinly traded ^b	31
Private/OTC firms	59
Foreign bidders	35
Simultaneous confounding events ^c	9
Announcement date not identified ^d	6
Subtotal	162
Final sample	63

^a Initial sample obtained from *Mergers and Acquisitions*.

^b A thinly traded bond is defined as a bond with less than eight trades during the 21-day event window. The majority of the thinly traded bonds have less than three trades.

^c The confounding events, such as the announcement of corporate earnings, dividends and divestitures, were identified from the *Wall Street Journal Index* for a seven-day period centered around the acquisition announcement.

^d The event date could not be identified in the *Wall Street Journal Index* or from the *Dow Jones News Wire*.

The mean dollar value of the acquisitions is \$1130.9 million and the mean (median) fraction acquired is 12.70% (7.20%) of the market value of the acquiring firm.

Table 3
Distribution of sample of 63 partial acquisitions, the rating distribution of bonds and quartiles of fraction of assets acquired

Panel A:		Panel B:		Panel C:		
Year	# of acquisitions	Moody's rating ^a	# of events	Quartiles	Average fraction of assets acquired ^b (\$ mil.)	
1990	7			1	0.0140	(\$1065.3)
1989	4			2	0.0457	(\$896.3)
1988	4	Aaa	8	3	0.1052	(\$1182.9)
1987	8	Aa	21	4	0.3574	(\$1437.2)
1986	5	A	19	Average	0.1270	(\$1130.9)
1985	10	Baa	8	Median	0.0720	(\$873.0)
1984	10	Ba	2	Minimum	0.0040	(\$138.0)
1983	6	B	4	Maximum	0.8170	(\$6400.0)
1982	9	NR	1			
Total	63	Total	63			

^a Moody's rating is for the month prior to the announcement of acquisition.

^b Fraction of assets acquired as a percent of the market value of the acquiring firm where the market value is computed as the book value of debt plus the market value of equity two days prior to the acquisition.

Table 4
Descriptive statistics over the major attributes of 63 partial acquisitions for the period 1982–1990

Variable	Mean	Median	Minimum	Maximum
Book value of total assets (\$ mil.) ^a	28,339	11,135	696	230,643
Market value of common stock (\$ mil.) ^b	12,164	2,882	138	131,522
Book debt ratio ^c (%)	66.73%	64.20%	37.54%	95.84%
Market debt ratio ^d (%)	61.78%	58.82%	19.70%	97.53%
Debt outstanding (\$ mil.) ^e	104.61	86.0	4.6	700.0
Days to complete acquisition ^f	84	65	17	263

^a Total assets for the fiscal year-end prior to the announcement are retrieved from *Moody's Manuals*.

^b Market value of common stock two days prior to the acquisition announcement.

^c Book debt ratio is defined as the book value of debt to the book value of total assets.

^d Market debt ratio is defined as the book value of debt to the market value of common stock plus book value of debt.

^e The average dollar value of debt outstanding for the bond issues included in the sample is obtained from *Standard and Poor's Bond Guide*.

^f Completion date is obtained from the *Wall Street Journal Index* or Dow Jones News Retrieval Service.

To further explicate the sample, descriptive statistics are presented in Table 4. The mean book value of total assets of the sample firms is approximately \$28.34 billion, with the smallest firm in the sample, Loral Corp., having total assets of \$695.93 million and the largest firm, Citicorp, worth \$230.64 billion. The median book (market) debt ratio is 64.20 (58.82) percent. For 50 of the 63 events, an exact completion date for the acquisition was identified from the *Wall Street Journal Index (WSJI)* or the *Dow Jones News Retrieval Service (DJNRS)*. There was a mean lag of 84 days between the announcement of a firm's intent to acquire and its subsequent completion, with a range of 17–263 days. Finally, the average outstanding dollar amount for the 63 sample bonds is \$104.61 million with a median of \$86 million.

Table 5 summarizes the frequency of the various financing methods and the number of bidders. Approximately 51% of the acquisitions were financed with debt, 17.55% with a combination of cash, debt and/or preferred stock, 20.55% with common stock and 11.11% with cash. Cash acquisitions are defined as acquisitions financed from internally generated funds. If the *WSJ* news article or *Mergers and Acquisitions* did not mention the financing method, we further

Table 5

The distribution of 63 partial acquisitions by the method of financing and the number of bids, 1982–1990

	Number of acquisitions	Percent of acquisitions
<i>Panel A: Financing method</i>		
Common stock financing	13	20.55%
Cash financing	7	11.11%
Combination financing	11	17.55%
Debt financing	32	50.79%
Total	63	100.00%
<i>Panel B: Number of bids^a</i>		
1 bid	49	77.78%
2 bids	6	9.52%
3–6 bids	8	12.70%
Total	63	100.00%

^a The number of bids were collected from *Wall Street Journal* articles on announcement day.

investigated whether the firm obtained the cash internally or from external sources, such as by issuance of debt or stock around the time of the acquisition. In only 12.7% of the cases acquirers assumed part or all of the debt of the acquired unit. Panel B of the table shows that nearly 78% of the acquisitions had one bidder and the remaining had between two to six bidders. Information on the number of bids for each acquisition is obtained from *WSJ* articles appearing on the announcement day.

4.2. Data sources

We collected the daily bond prices of the *most frequently* traded bond (one bond per firm) for 11 trading days before and 10 days after the announcement day from the *Wall Street Journal* (*WSJ*). The announcement day is defined as the day on which the intent to acquire was published in the *WSJ*. The exact announcement of intent date is identified from the *WSJI* and cross-checked for accuracy with the *DJNRS*. Treasury bond prices with matching coupons and maturities as those of the sample bonds are also collected from the *WSJ*. To compute daily returns from bond prices, with cumulated daily coupon interest, *Moody's Bond Record* is used to identify the interest payment dates. Stock price data are retrieved from the *CRSP NYSE/AMEX* daily master tape. Finally, detailed financial information about the sample is retrieved from *Moody's Industrial Manuals*.

5. The methodology

The mean adjusted returns methodology adapted for bonds by Handjinicolaou and Kalay (1984) is used to estimate excess bond returns. To adjust for changes in

the term structure of interest rates, the corporate bonds are matched with treasury bonds according to maturity and coupon rate, and the adjusted bond return ($ABR_{i,d}$) is calculated as the holding period bond return for firm i for day d minus the return over the same period for an equivalent treasury bond. Daily accrued coupon interest is added to the price change to calculate the bond's holding period return. A nineteen-day interval around the publication of the acquisition in the *WSJ* (day 0) is used to estimate the comparison and announcement period returns. The comparison period includes day $t - 10$ to day $t - 2$ and day $t + 1$ to day $t + 10$. Since bond returns are a series of single and multiple day returns, they are adjusted to yield equivalent *single-day* returns and standardized using the estimated standard deviation of the comparison period returns for the bond. Finally, the standardized mean excess return for the portfolio of bonds for each day over the entire 21-day period is estimated (for further details see Handjinicolaou and Kalay, 1984). For stocks, the market model is used to generate excess returns with parameter estimation period from day -250 to day -61 .

6. Empirical results

6.1. Overall results

Table 6 presents the bond and stock price reactions to acquisition announcements over different intervals with the corresponding t -statistics. The two-day (days -1 and 0) cumulative excess bond return (CERs) is -0.663% which is significant at the 1% level.⁵ Significant non-parametric z -statistics confirm that the result is not driven by outliers. This implies that acquisition announcements, on average, have a significantly negative impact on the wealth of the acquiring firms' bondholders. We focus on two-day (-1 and 0) cumulative excess returns as some of the reaction to the announcement is expected to be impounded on the security prices on the day preceding the publication of the acquisition in the *WSJ* (day 0).

Using the market model residuals, we find for the stock sample, the two-day (days -1 and 0) cumulative excess return is 0.025% , which is statistically insignificant. Our overall stock results conform to previous acquisition studies by Asquith and Kim (1982) and Asquith (1983), while the bond results are consistent with Asquith and Wizman (1990) and Warga and Welch (1991) who find a negative impact on bondholders in leveraged buyouts. The distribution of the two-day cumulative excess returns for bonds and stocks is presented in Table 7. The highest frequency of excess returns for bonds ($N = 22$) and stocks ($N = 11$) lies between -1.00% and 0% .

⁵ The bond event study results still hold when the sample is restricted to firms which have both bond and stock return data ($N = 59$).

Table 6

Mean cumulative excess returns (CERs) for various intervals around the first press announcement of 63 partial acquisitions, 1982-1990

Event window	Bondholder		Stockholder	
	CERs	<i>t</i> -statistic	CERs	<i>t</i> -statistic
<i>t</i> - 10, <i>t</i> - 2	0.202	0.415	-0.963	-1.428
<i>t</i> - 1, <i>t</i>	-0.660 ^a	-2.875	0.025	0.130
<i>t</i> + 2, <i>t</i> + 10	-0.090	-0.185	0.436	0.647

^a Significant at 1% level (two-tailed test).

Following Malatesta (1983) and Dennis and McConnell (1986), we compute the total dollar gains (losses) to both securityholder groups as it is a more appropriate measure of the wealth impact than the percentage excess returns. The dollar stockholder (bondholder) gains (losses) are calculated by multiplying the announcement period (days -1 and 0) stock (bond) excess return by the market (book) value of the equity (long-term debt) at the year end preceding the transaction. As shown in Table 8, the average dollar losses to bondholders are -\$57.9 million per firm which is significantly different from zero ($t = 1.82$). The mean dollar gains to stockholders are \$3.3 million per firm which is statistically insignificant. The median dollar changes in value are -\$5.50 million and -\$5.23 million per firm, respectively. Although the average decrease in firm value is -\$54.65 million, it is statistically insignificant ($t = -0.82$).

Since the dollar excess returns are not normally distributed, we performed the non-parametric binomial sign test. The computed *z*-statistics are consistent with the inferences drawn using the *t*-statistics. The *z*-statistics are -0.91 for the dollar stock excess returns, -2.99 for the dollar losses to bondholders and -0.65 for the

Table 7

Frequency distribution of bond and stock two-day announcement period excess return (CER) for 63 partial acquisitions, 1982-1990

Excess return (%) range	Number of observations	
	bonds	stocks
-3 > CER	5	8
-2 > CER > = -3	4	4
-1 > CER > = -2	13	10
0 > CER > = -1	22	11
1 > CER > = 0	10	10
2 > CER > = 1	7	6
3 > CER > = 2	2	4
CER > = 3	-	6
Total	63	59 ^a

^a Stock returns for four events were unavailable around the announcement period.

Table 8

Summary of changes in the million dollar values of bondholders, stockholders and total firm for a two-day announcement period of 59^a partial acquisitions, 1982–1990

Statistics	Change in stock value	Change in bond value	Change in firm value
Mean change in \$ value	3.28	– 57.93	– 54.65
Median change in \$ value	– 5.23	– 5.50	– 4.04
<i>t</i> -statistic	0.06	– 1.82	– 0.82
<i>z</i> -statistic (binomial sign test)	– 0.91	– 2.99	– 0.65
Number negative	33	41	32
Sample size	59	59	59

^a For four transactions, the stock excess return for the announcement period is unavailable.

change in firm value. This indicates that, on average, bondholders suffer significant dollar losses ($p = 0.003$), while the change in the dollar value for the stockholders and the firm as a whole are insignificant. Our analysis indicates that any wealth loss to the firm is completely absorbed by the bondholders. Thus, the bondholders cannot be expected to be indifferent to such transactions. For mergers, Malatesta (1983) and Dennis and McConnell (1986) obtain similar results for stockholders. Using excess returns for months -1 and 0 , Dennis and McConnell (1986) find that, on average, stockholders gain \$52.4 million with a *t*-statistic of 1.58, while Malatesta (1983) estimates stockholder gains to be \$13.8 million with a *t*-statistic of 0.91.⁶

6.2. Cross-sectional regression analysis

To explain securityholders' excess returns as a result of partial acquisitions and to test the various related hypotheses expounded earlier, we estimate various versions of the following model for each type of securityholder:

$$\text{BER or SER} = a_0 + a_1(\text{FRAC}) + a_2(\text{BIDS}) + a_3(\text{BDR}) + a_4(\text{CASH}) \\ + a_5(\text{COMB}) + a_6(\text{DEBT}) + \bar{e}$$

where: BER = the announcement period (days $-1, 0$) cumulative excess bond return; SER = the announcement period (days $-1, 0$) cumulative excess stock return; FRAC = the value of the acquisition as a fraction of the acquiring firm's

⁶ To further analyze the excess returns of securityholders, we pair in a contingency table the two-day announcement period excess bond returns with the corresponding stock excess returns according to their signs. In support of the wealth transfer hypothesis, we find that for nearly 58% of the sample one of the two securityholder groups gains while the other loses. We find negative wealth impact on both bondholders and stockholders for 33.9% of the sample in support of the hubris hypothesis. Finally, only 8.5% of the transactions result in value enhancement for both types of securityholders. Using a chi-square test of significance (χ^2), we reject the null hypothesis that the frequency of occurrences in each quadrant of the table is equal at the 8% level ($\chi^2 = 3.18$).

market value two days prior to the acquisition announcement; BIDS = a dummy variable that takes a value of 1 if there were multiple bidders and 0 otherwise; BDR = the book debt value to total assets of the acquiring firm for the fiscal year prior to the announcement; CASH = a binary variable which assumes a value of 1 if the acquisition is cash-financed and 0 otherwise; COMB = a binary variable which assumes a value of 1 if the acquisition is financed by a combination of debt, preferred stock, cash, and 0 otherwise; DEBT = a binary variable which assumes a value of 1 if the acquisition is debt-financed and 0 otherwise; $\bar{\epsilon}$ = random error term.

The impact of the fraction of assets acquired, FRAC, on both bondholders and stockholders depends on whether partial acquisitions are value-enhancing or value-destroying. If partial acquisitions are, on average, value-enhancing projects then the largest positive impact should be observed when the acquisition is larger relative to the acquiring firm. On the other hand, if partial acquisitions are value-destroying then the fraction of assets acquired would impact securityholder wealth negatively. Therefore, a priori we expect that the larger the FRAC variable, the larger should be the *absolute* value of the abnormal returns, implying that a big and bad deal should result in a more negative abnormal return, while a big and good deal should generate more positive abnormal return for the respective claimholders. Asquith et al. (1983) find a significant positive relationship between the relative size of the acquisition and the returns to the acquiring firm's shareholders. In contrast, Travlos (1987) and Peterson and Peterson (1991) find no significant relation between the fraction of acquired assets and acquiring stockholders' wealth.

To examine the effect of the degree of competition in acquisitions, we use the BIDS variable. It has been documented by Bradley et al. (1988) that for mergers, stockholders of the acquiring firm gain more in single bid contests as compared to ones with multiple bids. Likewise, we test whether the same relationship between the number of bids and the wealth of the two types of securityholders holds in the case of partial acquisitions. In one specification of the stock regression (model 3), we include BER as an independent variable to provide a cross-sectional test for the wealth transfer effect.

The next four variables – BDR, CASH, COMB and DEBT – are related to the financing issue. The higher the debt ratio, BDR, the greater the default risk of the bondholders. Therefore, we expect that this *control* variable should be negatively (positively) related to bondholder (stockholder) excess return. The three qualitative variables CASH, COMB and DEBT capture the effects of these different methods of financing relative to stock financing on the respective securityholders' excess return. We expect the DEBT variable to have the most negative impact on bondholder wealth as it is associated with the highest potential for wealth transfer. In contrast, a stock financing will be preferred most by the bondholders as it has the least potential to adversely affect them. Needless to mention that in the bondholders' pecking order of preference for the method of acquisition financing,

Table 9

Results from ordinary least square regressions for a sample of 63 acquisitions where two-day announcement period bond and stock excess returns are regressed on various investment and financing variables (*t*-statistics in parentheses)

Independent variables	Model 1 (bond)	Model 2 (stock)	Model 3 (stock)
Constant	3.052 ** (1.70)	-3.589 *** (-1.93)	-0.611 (-0.16)
BER	-	-	-0.363 ** (-1.87)
FRAC ^a	-2.311 (-0.87)	4.871 *** (2.01)	4.629 ** (2.05)
BIDS	-0.455 (-0.53)	-0.585 (-0.53)	-0.299 (-0.65)
BDR	-3.767 *** (-3.10)	3.541 ** (2.00)	-
CASH	-0.863 (-1.14)	1.961 * (1.60)	-
COMB	-0.960 * (-1.31)	1.966 ** (1.98)	-
DEBT	-1.271 *** (-2.21)	1.803 ** (1.96)	-
Adj. R ²	0.112	0.053	0.051

^a Significance level for FRAC variable is based on two-tailed test, remaining variables are based on one-tailed test.

*, **, *** denote significance at the 10%, 5% and 1% levels, respectively.

Variable definitions: BER = the two-day announcement period bond excess return; FRAC = the value of the acquisition as a fraction of the acquiring firm's market value; BIDS = a binary variable that takes a value of 1 if there were multiple bidders and 0 otherwise; BDR = the book debt value to total assets for the fiscal year prior to the announcement; CASH = a binary variable which assumes a value of 1 if the acquisition is cash-financed and 0 otherwise; COMB = a binary variable which takes a value of 1 if the acquisition is financed by a combination of cash, preferred stock and/or debt and 0 otherwise; DEBT = a binary variable which assumes a value of 1 if the acquisition is debt-financed and 0 otherwise.

we would expect the CASH and COMB coefficients to be negative for bondholders as they capture the respective financing effects relative to stock financing. The opposite holds true for the effect of the financing variables on stockholder wealth.

Estimates of the various models with bond and stock excess returns as the dependent variables are presented in Table 9.⁷ White's (1980) correction is used

⁷ Acharya (1988) and Eckbo et al. (1990) show that a more robust method of estimation of such signalling models is to use the maximum-likelihood estimation technique. They also argue that estimating price responses to signals without conditioning on the signalling rules of the signaller (in our case the bidder) can be misspecified. Eckbo et al. (1987) point out that an inherent potential problem in asymmetric information models is the possible violation of distributional assumption needed to examine such models using cross-sectional regressions. Hence, the signalling implications of different methods of financing drawn here from simple OLS estimation may be biased.

to remedy heteroskedasticity in the models. In contrast to Bradley et al. (1988) on mergers, the investment-related variable, BIDS, is statistically insignificant in the bond and stock models.⁸ This result may be attributed in part to the fact that the market for corporate control in partial acquisitions is less competitive where transactions are typically friendly and initiated by the seller. Consistent with Asquith et al. (1983), the regression results indicate that the FRAC variable has significant explanatory power for stockholder excess return ($t \geq 2.01$). However, this variable is found to be insignificant in explaining excess returns for bondholders.

The coefficients of the four financing variables in the bond model are all negative as expected. The coefficient of BDR is significant at the 0.01 level ($t = 3.10$) supporting our conjecture that, *ceteris paribus*, the higher the debt ratio, the greater the adverse effect on bondholder wealth. As expected, we find the coefficient for DEBT to be negative and significant at the 0.01 level in the bond regression (model 1). This strongly supports our expectation that for bondholders debt financing (relative to stock financing) will be the least preferred method of financing an acquisition. It is interesting to note that for bondholders the negative effect of wealth transfer due to debt financing overwhelms its positive signalling effect. The binary variable, CASH, has a *p*-value of 0.13 in this model. The insignificance of the CASH variable suggests that the positive returns to the stockholders of the cash bidder are due to the mode of acquisition which signals favorable private information about the firm, and not necessarily due to wealth transfer from the bondholders. The coefficient of the dummy variable, COMB, is negative and significant at the 0.10 level. In summary, the results with respect to the financing variables support our expectation of a preference structure for bondholders for acquisition financing.

Our results concerning the effect of the method of financing on bondholders are inconsistent with Travlos' (1987) bond results for mergers where stock transactions result in adverse impact on bondholders and cash transactions have no significant effect. This may be due to the fact that the impact on bondholders in a merger is a function of both the acquisition financing method as well as the relative leverage of the acquired firm to that of the acquirer, while in partial acquisitions (where acquiree's debt obligations are generally not assumed) the method of financing reflects the total impact of any change in leverage. Furthermore, in Travlos' stock exchange sample, the acquiring firm's bondholders may have been impacted adversely even when the leverage of the two entities is similar if the relative priority structure of the acquiring debt claims became lower after the transaction (due to the assumption of debt of acquired firm).

⁸ The regression results are similar when the BIDS variable is defined as the number of competing bids made for a certain acquisition.

As expected, all financing variables in model 2 (stock) are significant with signs *opposite* to those obtained for bondholders. The impact of the financing method on stockholder returns is consistent with the results obtained by Travlos (1987) and Franks et al. (1988) for mergers. The positive and significant DEBT coefficient is in support of Myers and Majluf's (1984) notion of adverse information conveyed by stock issuance vis-à-vis debt financing, while the significantly positive CASH coefficient is consistent with Fishman's (1989) conjecture that cash is used in high-value acquisitions. In the second formulation of stock regression (model 3), we estimate the two-day stock excess return as a function of the corresponding two-day bond excess return (BER), the size of the acquisition (FRAC) and the number of bids (BIDS). The results show a significant negative relation between stock excess return and BER ($t = -1.87$) providing further support for the wealth transfer hypothesis.

Finally, in one specification of the model we include a dummy variable, TKVR, to identify acquisitions that involve a takeover-related divestiture. Inclusion of this variable enables us to investigate whether such external pressure on the seller, perhaps forcing it to undertake a "fire sale" as a takeover defense, creates any additional benefits for the acquiring firm's securityholders. We identified such acquisitions by scanning the *WSJI* and the *DJNRS* for one year prior to the acquisition about takeover-related news for the *selling* firm, such as, takeover attempt, accumulation of toe-hold positions or rumors of takeover. However, such acquisitions are not found to be significantly different in their impact on the announcement period excess return of either securityholder.

7. Summary and conclusions

Previous studies on mergers and partial acquisitions, focusing solely on stockholder wealth, report mixed results about the valuation effect of these transactions. We postulate that to capture the total firm valuation effect of such acquisitions, the wealth impact, not only on stockholders but also on bondholders must be examined. Furthermore, by focusing on partial acquisitions, we are able to isolate the signalling effect from the effects of tax incidence and the mood of the acquisition. Daily bond and stock event study results indicate that bondholders experience significant losses, while stockholders experience normal returns. Dollar excess returns indicate that although partial acquisitions are value-neutral transactions from a firm value perspective, any dollar losses accruing to the firm are totally absorbed by the bondholders.

In the cross-sectional analyses, we explain the announcement period bond and stock excess returns by distinguishing the investment effect of the acquisition from the effect of the method of financing. The regression results indicate that the size of the acquisition has significant explanatory power for stockholder excess return only. The financing variables are significant in explaining both bondholder and

stockholder wealth. However, they are found to have opposite effects on the two types of securityholders. These results strongly imply that the method of financing the acquisition is crucial in determining the wealth impact on securityholders. The regression results provide strong evidence to support our expectation of the existence of a preference structure for bondholders for acquisition financing.

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References

- Acharya, S., 1988, A generalized econometric model and tests of a signalling hypothesis with two discrete signals, *Journal of Finance* 43, 413–429.
- Asquith, P., 1983, Merger bids, uncertainty and stockholder returns, *Journal of Financial Economics* 11, 51–83.
- Asquith, P. and E.H. Kim, 1982, The impact of merger bids on participating firms' securityholders, *Journal of Finance* 37, 1209–1228.
- Asquith, P. and T. Wizman, 1990, Event risk, wealth redistribution and the return to existing bondholders in corporate buyouts, *Journal of Financial Economics* 27, 195–213.
- Asquith, P., R.F. Bruner and D.W. Mullins, Jr., 1983, The gains to bidding firms from merger, *Journal of Financial Economics* 11, 121–140.
- Bradley, M., A. Desai and E.H. Kim, 1983, Rationale behind interfirm tender offers, *Journal of Financial Economics* 11, 183–206.
- Brown, D.T. and M.D. Ryngaert, 1991, The mode of acquisitions in takeovers: Taxes and asymmetric information, *Journal of Finance* 46, 653–669.
- Dennis, D.K. and J.J. McConnell, 1986, Corporate mergers and security returns, *Journal of Financial Economics* 16, 143–187.
- Dodd, P., 1980, Merger proposals, management discretion and stockholder wealth, *Journal of Financial Economics* 8, 105–138.
- Dodd, P. and R.S. Ruback, 1977, Tender offer and stockholder returns: An empirical analysis, *Journal of Financial Economics* 4, 715–732.
- Eckbo, B.E., R. Heinkel and R. Giammarino, 1987, Asymmetric information and the medium of exchange in takeovers: Theory and evidence, Working Paper, University of British Columbia.
- Eckbo, B.E., R. Giammarino and R. Heinkel, 1990, Asymmetric information and the medium of exchange in takeovers: Theory and tests, *Review of Financial Studies* 3, 651–675.
- Fishman, M., 1989, Preemptive bidding and the role of medium of exchange in acquisitions, *Journal of Finance* 44, 41–58.
- Franks, J., R.S. Harris and C. Mayer, 1988, Means of payment in takeovers: Results for the U.K. and U.S., in: A.J. Auerbach, ed., *Corporate takeovers: Causes and consequences* (The University of Chicago Press, Chicago/London) 221–244.
- Galai, D. and R.W. Masulis, 1976, The option pricing model and the risk factor of stock, *Journal of Financial Economics* 3, 53–81.

- Gordon, M.J. and J. Yagil, 1981, Financial gains from conglomerate mergers, in: H. Levy, ed., *Research in finance*, Vol. 3 (JAI Press, Greenwich, CT) 103–142.
- Handjinicolaou, G. and A. Kalay, 1984, Wealth redistribution or changes in firm value: An analysis of returns to bondholders and stockholders around dividend announcements, *Journal of Financial Economics* 13, 35–63.
- Hansen, R., 1987, A theory of the medium of exchange in mergers and acquisitions, *Journal of Business* 60, 75–96.
- Healy, P.M., K.G. Palepu and R.S. Ruback, 1992, Does corporate performance improve after mergers? *Journal of Financial Economics* 31, 135–175.
- Herz, R.H. and E.J. Abaehoonie, 1988, Divestiture alternatives for minimizing taxes, *Mergers and Acquisitions* July/August, 43–48.
- Higgins, R.C. and L.D. Schall, 1975, Corporate bankruptcy and conglomerate merger, *Journal of Finance* 30, 93–113.
- Jain, P.C., 1985, The effect of voluntary sell-off announcements on shareholder wealth, *Journal of Finance* 40, 209–224.
- Kim, H.E. and J.J. McConnell, 1977, Corporate mergers and the co-insurance of corporate debt, *Journal of Finance* 32, 349–365.
- Lewellen, W., 1971, A pure financial rationale for the conglomerate merger, *Journal of Finance* 26, 521–537.
- Malatesta, P.H., 1983, The wealth effect of merger activity and the objective functions of the merging firms, *Journal of Financial Economics* 11, 155–182.
- Miles, J.A. and J.D. Rosenfeld, 1983, The effect of voluntary spin-off announcements on shareholder wealth, *Journal of Finance* 38, 1597–1606.
- Morck, R., A. Shleifer and R.W. Vishny, 1988, Characteristics of targets of hostile and friendly takeovers, in: A.J. Auerbach, ed., *Corporate takeovers: Causes and consequences* (The University of Chicago Press, Chicago/London) 101–129.
- Myers, M. and N.J. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187–221.
- Peterson, D.R. and P.P. Peterson, 1991, The medium of exchange in mergers and acquisitions, *Journal of Banking and Finance* 15, 383–405.
- Roll, R., 1986, The hubris hypothesis of corporate takeovers, *Journal of Business* 59, 197–216.
- Rosenfeld, J.D., 1984, Additional evidence on the relation between divestiture announcements and shareholder wealth, *Journal of Finance* 39, 1437–48.
- Sicherman, N.W. and R.H. Pettway, 1987, Acquisition of divested assets and shareholders' wealth, *Journal of Finance* 42, 1261–1273.
- Travlos, N.G., 1987, Corporate takeover bids, methods of payment, and bidding firms' stock returns, *Journal of Finance* 42, 943–963.
- Wansley, J.W., W.R. Lane and H.C. Yang, 1983, Shareholders returns to acquired firms by type of acquisition and method of payment, *Financial Management* 12, 16–22.
- Wansley, J.W., W.R. Lane and H.C. Yang, 1987, Gains to acquiring firms in cash and securities transactions, *Financial Review* 16, 403–414.
- Warga, A. and I. Welch, 1991, Bondholder losses in leveraged buyouts, Working Paper, Columbia University.
- White, A., 1980, A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity, *Econometrica* 48, 817–838.
- Zaima, J.K. and D. Hearth, 1985, The wealth effects of voluntary selloffs: Implications for divesting and acquiring firms, *Journal of Financial Research* 8, 227–236.