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Free Cash Flow and Stockholder Gains in Going Private Transactions

KENNETH LEHN and ANNETTE POULSEN*

ABSTRACT

We investigate the source of stockholder gains in going private transactions. We find support for the hypothesis advanced by Jensen that a major source of these gains is the mitigation of agency problems associated with free cash flow. Using a sample of 263 going private transactions from 1980 through 1987, our results indicate a significant relationship between undistributed cash flow and a firm's decision to go private. In addition, we find that premiums paid to stockholders are significantly related to undistributed cash flow. These results are especially strong for firms that went private between 1984 and 1987 and also for firms whose managers owned relatively little equity before the going private transaction.

During the past several years an increasing number of publicly traded corporations have "gone private" and shareholders have reaped large gains in these transactions.¹ The source of these gains, however, remains puzzling. Unlike other corporate control transactions, most going private transactions do not combine two previously separate firms; consequently, shareholder gains created by these transactions cannot be attributed directly to synergies associated with the merger of two firms. While several hypotheses concerning the source of wealth gains have been proposed, there is little empirical evidence supporting these hypotheses.

We find support for the hypothesis advanced by Jensen (1986) that a major source of stockholder gains in going private transactions is the mitigation of agency problems associated with free cash flow. Using a sample of 263 going private transactions from 1980 through 1987, we empirically examine the "free cash flow" hypothesis by addressing two questions:

- (1) Do firms that go private have significantly greater undistributed free cash flow than similar firms that have not gone private?

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¹ In going private transactions, shareholders of a publicly held corporation are bought out, typically at a large premium, by a bidder who takes a concentrated ownership position in a reconstituted, privately held firm. Frequently, these transactions are referred to as "leveraged buyouts," since they usually are financed heavily by debt, or "management buyouts," since incumbent management is often the bidder.

(2) Is undistributed free cash flow an important determinant of premiums paid in going private transactions?

Our results indicate that the ratio of a firm's undistributed cash flow to its equity value is a marginally significant determinant of a firm's decision to go private between 1980 and 1987. This ratio becomes highly significant between 1984 and 1987 when the number of hostile takeovers increased substantially. Our results also indicate that the ratio of undistributed cash flow to equity value is a marginally significant determinant of premiums paid to stockholders of going private firms during the test period. The ratio becomes highly significant in firms that went private between 1984 and 1987 and also among firms whose managers owned relatively little equity before the going private transaction.

I. Sources of Stockholder Gains in Going Private Transactions

Going private transactions create significant wealth gains for target stockholders.² Four suggested sources of stockholder gains in these transactions include: (1) tax savings; (2) redistribution from bondholders; (3) asymmetric information; and (4) mitigation of agency problems.

A. Tax Savings

Three tax incentives have been proposed as important sources of wealth gains in going private transactions: the tax deductibility of interest payments on corporate debt; increased depreciation deductions associated with step-up of assets in going private transactions (especially significant before the Tax Reform Act of 1986); and the tax advantages of financing going private transactions with employee stock ownership plans (ESOPs).³ Although Lowenstein (1985) and Marais, Schipper, and Smith (1988) find that premiums paid and tax savings are correlated in these transactions, their evidence also suggests that going private transactions are not exclusively a function of tax considerations.⁴

B. Redistribution from Bondholders

Since debt-equity ratios increase substantially in going private transactions, stockholder gains could be partially wealth transfers from the bondholders of the target firms.⁵ Certainly some well publicized going private transactions have

² Studies of gains to stockholders in going private transactions estimate average premiums ranging from 21.1% to 56.3% and abnormal returns ranging from 13% to 28.05%. See DeAngelo, DeAngelo, and Rice (1984), Marais, Schipper, and Smith (1988), Torabzadeh and Bertin (1987), Travlos and Millon (1987), Lehn and Poulsen (1988), and Amihud (1988).

³ The tax advantages associated with corporate acquisitions are discussed in Gilson, Scholes, and Wolfson (1988), Macris (1988), and Schipper and Smith (1986).

⁴ Regulation, in the form of SEC reporting requirements and exchange-listing standards, is an additional "tax" avoided by firms that go private. Since many of these costs are largely invariant with respect to firm size, this explanation is probably only relevant for small firms.

⁵ For a discussion of the effect of leverage-increasing transactions on the value of outstanding debt, see Masulis (1980).

involved significant reductions in the value of target firms' outstanding bonds⁶ and several studies have addressed this issue. Although the evidence is mixed and suffers from relatively small sample sizes, it indicates that stockholder gains in going private transactions greatly exceed whatever losses may be suffered by bondholders in these transactions.⁷

C. Asymmetric Information

Management-led going private transactions are, in a sense, an extreme form of corporate stock repurchases. Since management's possession of private information often is suggested as the major reason for corporate stock repurchases, it is reasonable to posit this information asymmetry as an explanation for going private transactions.⁸ Certainly, there are anecdotes consistent with this hypothesis. For example, Metromedia's managers took that firm private in a transaction valued at \$1.3 billion in 1984; within two years management had raised the value of Metromedia to \$4.6 billion, largely through the sale of some of Metromedia assets.⁹ There is no evidence, however, that suggests that asymmetric information is the primary explanation for going private transactions. Later, we present evidence that many going private transactions are preceded by competing bids or takeovers rumors, a finding somewhat inconsistent with the asymmetric information explanation.

D. Mitigation of Agency Problems

Economists and legal scholars have long recognized the potential conflict of interest between managerial incentives and stockholders' interests in publicly traded corporations.¹⁰ Going private transactions can mitigate the conflict by concentrating residual claims among management or an outside monitor. These transactions, therefore, internalize the wealth consequences of managerial decisions and can enhance the productivity of the firm.¹¹

Jensen (1986) suggests that takeovers in general, and going private transactions in particular, mitigate a special type of agency problem in firms with substantial free cash flow. Pointing out that target firms characteristically have low-growth prospects and substantial cash flow, Jensen describes the specific incentive problem that arises in these firms:

Free cash flow is cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of

⁶ For example, during a short period surrounding the first announcement of the recent offer for RJR Nabisco, RJR Nabisco's common stock price increased 61.8% (from \$55 to \$89 per share) while the price of one of its outstanding bonds declined 16.5% (from \$85 to \$71). See Wallace (1988).

⁷ See Travlos and Millon (1987), Lehn and Poulsen (1988), and Marais, Schipper, and Smith (1988).

⁸ See Dann (1981) and Vermaelen (1981).

⁹ See Stein (1988).

¹⁰ See Berle and Means (1932) and Jensen and Meckling (1976).

¹¹ Bull (1988), Kaplan (1988), and Muscarella and Vetsuypens (1988) find evidence consistent with the "management incentive" hypothesis. For samples of firms that went private, all three studies found that accounting profit rates increased significantly following going private transactions.

capital. Conflicts of interest between shareholders and managers over payout policies are especially severe when the organization generates substantial cash flow. The problem is how to motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on organization inefficiencies. (p. 323)

Low growth prospects suggest that firms have few opportunities to reinvest the cash flow profitably in the firms' current lines of business. If the firm's management is specialized in its current lines of business, then it may be unprofitable to invest the cash flow in diversification strategies. Premiums paid in going private transactions, therefore, represent a revaluation of the firms' discounted free cash flows. The substantial debt incurred in these transactions serves as a bonding device; management commits to pay out a substantial proportion of future cash flows in the form of coupon payments on the debt, rather than invest it unprofitably. Since the penalty for defaulting on a coupon payment (the possibility of Chapter 11 bankruptcy proceedings) is presumably greater than the corresponding penalty for reducing dividend payments, debt more effectively compels management to pay free cash flow to the firms' securityholders.

Why would managers in firms characterized by severe agency problems suddenly have an incentive to pay out free cash flow to stockholders in the form of going private premiums? If these firms are likely targets of hostile takeover attempts, then the managers have a strong incentive to preempt a hostile bid by paying out the excess cash flow in the form of a dividend increase, a stock repurchase program, or, in the limit, a going private transaction. It should be noted that this threat also may induce managers to make buyout offers if the source of the stockholder gains lies elsewhere (e.g., tax savings).¹² Nonetheless, the free cash flow hypothesis suggests the threat of a hostile takeover is an important impetus for going private transactions.

II. Sample Characteristics

To test the free cash flow hypothesis, we collected data for a sample of 263 successful going private transactions from 1980 through 1987.¹³ A going private transaction was defined as one that converted a free-standing, publicly traded corporation into a privately held corporation. We list our sample in Appendix A.

The number and average value of equity of firms going private increased dramatically over the sample period, as reported in Table I. The number of transactions increased from 98 during the first four years of the sample period to 165 during the last four years. Total equity value of these firms (at the end of the fiscal year before the going private announcement) increased from \$8.5 billion from 1980 through 1983 to \$42.3 billion from 1984 to 1987. The mean (median)

¹² This point is developed more fully in Shleifer and Vishny (1986).

¹³ This sample was collected by searching all corporate entries in the annual editions of *The Wall Street Journal Index* from 1980 through 1987 for announcements of going private transactions. We also required that Compustat data be available for the firm for it to be included in our sample.

Table I
Number, Mean Equity Value, Median Equity Value and
Total Equity Value of Companies That Went Private,
1980–1987

Equity values are computed as the product of common shares outstanding and closing price of common stock at end of fiscal year immediately preceding the calendar year of the going private transactions, as reported by Compustat.

Year	Number of Going Privates	Mean Value of Equity (in millions)	Median Value of Equity (in millions)	Total Value of Equity (in millions)
1980	15	\$ 33.1	\$11.4	\$ 496.8
1981	21	87.8	21.4	1,843.0
1982	27	79.1	60.8	2,136.4
1983	35	115.4	55.8	4,037.6
1984	48	173.9	62.6	8,349.3
1985	36	371.7	95.8	13,383.0
1986	39	285.9	73.5	11,150.2
1987	42	224.3	75.2	9,422.3
1980–1983	98	\$ 86.9	\$34.6	\$ 8,513.8
1984–1987	165	256.4	74.6	42,304.7
Full Sample	263	\$193.2	\$63.8	\$50,818.5

value of equity in a going private transaction also increased over these periods, from \$86.9 million (\$34.6 million) to \$256.4 million (\$74.6 million).

To empirically examine whether the increased number of going private transactions during the mid-1980s was induced by hostile takeover threats, we identified sample firms that either received a competing bid or were the subject of takeover speculation reported in the *Wall Street Journal* (i.e., firms that “heard footsteps”) during the year preceding the announcement of the going private proposal. Table II lists these data.

Concomitant with the increase in going private activity, a significant increase in the proportion of firms hearing footsteps before the going private transaction is found. From 1980 through 1983, 30.6% of all going private transactions were accompanied by a competing bid or prior takeover speculation; the corresponding figure from 1984 through 1987 is 49.7%. This difference is consistent with the argument that the large increase in going private activity in recent years has been induced, at least in part, by an increase in the threat of hostile takeovers.

We measure the average cumulative abnormal returns associated with the first announcement of a going private proposal in *The Wall Street Journal* for the 244 transactions in the sample for which sufficient data were available.¹⁴ The information in the initial announcements varied from contemplation of going private proposals to approval of going private proposals by the targets’ boards of directors.

The average cumulative abnormal return associated with these announcements

¹⁴ Returns data are obtained from the CRSP (Center for Research in Security Prices) tape and price data tapes provided to the SEC by the Securities Industry Automation Corporation. We used conventional event study methodology to estimate abnormal returns. See Brown and Warner (1985).

Table II
Number and Percent of Going Private
Transactions Preceded by Competing Bids or
Takeover Rumors (Footsteps), by Year,
1980–1987

Year	Number of Firms Going Private	Number with Footsteps	Percent with Footsteps
1980	15	3	20.0
1981	21	5	23.8
1982	27	11	40.7
1983	35	11	31.4
1984	48	18	37.5
1985	36	21	58.3
1986	39	20	51.3
1987	42	23	54.8
1980–1983	98	30	30.6*
1984–1987	165	82	49.7
Full Sample	263	112	42.6

* The *z*-statistic corresponding to the difference in proportion of going privates with footsteps during 1980–1983 and 1984–1987 is 3.15, statistically significant at the 1% confidence level.

is 16.3% percent, from one trading day preceding the announcement through one trading day after the announcement (i.e., measured over a $[-1,1]$ window), and the corresponding *t*-statistic is 42.8. The cumulative abnormal returns over the $[-10,+10]$ and $[-20,+20]$ windows are 19.9% (*t*-statistic = 19.4) and 20.5% (*t*-statistic = 14.3), respectively. These results are similar to those in previous studies of going private transactions.

We also measured the average premium paid in going private transactions, computed as the non-market-adjusted return (including dividends paid) from 20 trading days immediately preceding the going private announcement to the final price at which the firm's common equity traded. The average value of the premium for the 257 firms in the sample for which we obtained these data is 36.1% (*t*-statistic = 22.4). Since premiums are measured directly and because premiums are measured over the full period of the going private transaction, we use premiums, rather than abnormal returns, as the independent variable for the tests that follow.¹⁵

III. Empirical Results

We use two approaches to empirically examine the free cash flow hypothesis. First, we attempt to explain why some firms, and not others, went private by contrasting firms that go private with a control sample. Second, we attempt to

¹⁵ In a two-tier tender offer, some of the premium may be paid to stockholders before the final trading day and thus the final price will not represent the full premium. Two-tier tender offers are relatively rare in our sample, however, and as long as they are uncorrelated with our explanatory variables, there should be no bias in our empirical examination of the determinants of premiums.

explain the cross-sectional variation in premiums paid in going private transactions.

A. Determinants of the Likelihood of Going Private

To address the question of why some firms and not others go private, we created a control sample of firms that were not taken over, either in going private transactions or otherwise, during this period. We matched the sample firms with control firms with the same four-digit SIC code whose market value of equity most closely matched the sample firm's equity at the end of the fiscal year preceding the year of the going private transaction.

The free cash flow hypothesis suggests that the proportion of a firm's assets consisting of free cash flow should relate directly to the likelihood of a firm going private, holding constant the firm's growth prospects. For each firm in both the going private sample and the control sample, we calculated a measure of undistributed cash flow (CF) for the year immediately preceding the year of the going private transaction. This variable is defined as

$$CF = INC - TAX - INTEXP - PFDDIV - COMDIV, \quad (1)$$

where

INC = operating income before depreciation, (Compustat item #13);

TAX = total income taxes, (Compustat item #16), minus change in deferred taxes from the previous year to the current year (change in Compustat item #35);

INTEXP = gross interest expense on short- and long-term debt (Compustat item #15);

PFDDIV = total amount of preferred dividend requirement on cumulative preferred stock and dividends paid on noncumulative preferred stock (Compustat item #19);

COMDIV = total dollar amount of dividends declared on common stock (Compustat item #21).

CF measures post-tax cash flow that was not distributed to securityholders as either interest or dividend payments. In the analysis that follows, *CF* is expressed as a percentage of *EQUITY*, the market value of common equity at the end of the fiscal year immediately preceding the year of the going private transaction; we refer to this variable as *CF/EQ*.

To proxy for growth prospects for each firm, we calculated the average annual percent increase in net sales (Compustat item #12) during the five years preceding the going private transaction; we also calculated the corresponding average for the four years, three years, and two years immediately preceding the transactions.¹⁶ We refer to these variables as *SALESGR5*, *SALESGR4*, *SALESGR3*, and *SALESGR2*, respectively.

The sales growth variable is intended to proxy, albeit crudely, for opportunities for profitable reinvestment of cash flow. One difficulty with this variable, and

¹⁶ Compustat data are not available for all companies during the entire five years preceding the going private transactions. Thus, the number of observations for which *SALESGR5* can be calculated is less than the number of observations for which *SALESGR2* can be calculated.

with most variables that attempt to proxy for growth prospects, is that it may measure the proclivity of managers to use free cash flow in value-reducing ways. For example, sales growth will be large for firms that embark on aggressive acquisition strategies. If the acquisitions diminished equity value, however, this variable will appear to be measuring high growth prospects when in fact it is measuring the nonproductive use of free cash flow.

Because CF/EQ may be highly correlated with a firm's effective tax liability, and since tax considerations may also affect the likelihood of going private, we measured the effective tax liability for each company in the sample. This tax measure, computed as above, is divided by $EQUITY$, and referred to as TAX/EQ . We use it to approximate the maximum potential tax benefits associated with going private. The partial correlation coefficient between CF/EQ and TAX/EQ is positive, but not especially large (0.20); it is, however, statistically significant at the 99% level.

A.1. Comparison of Summary Data for Going Private and Control Samples

Table III lists the mean value of the above variables for the going private and control samples. We also report the mean difference in the value of each variable for each matched pair of going private firm and corresponding control firm. The comparisons support the free cash flow hypothesis.

CF/EQ is significantly larger in the going private sample than in the control sample. Average CF/EQ is 0.119 for going private firms and 0.068 for the control sample. The average difference across the matched pairs is 0.052, significantly different from zero at the 5% confidence level.

There are also significant differences in the mean values of the growth variables across the two samples. Regardless of which growth variable is used, the going private sample is characterized by systematically lower growth rates than the

Table III
Mean Values of Variables for Going Private
Firms and Control Firms and Corresponding
***t*-Statistics for Differences in Means**

Variable	Going Private Firms	Control Firms	Mean Difference	<i>t</i> -Statistic for Difference in Means ^a
<i>EQUITY</i> (millions)	\$193.2	\$159.1	\$31.5	2.72***
<i>CF/EQ</i>	0.119	0.068	0.052	2.34**
<i>TAX/EQ</i>	0.057	0.048	0.009	1.24
<i>SALESGR5</i>	0.113	0.193	-0.033	-1.33
<i>SALESGR4</i>	0.095	0.236	-0.120	-2.56**
<i>SALESGR3</i>	0.116	0.263	-0.151	-1.95*
<i>SALESGR2</i>	0.094	0.252	-0.162	-2.04**
<i>FOOTSTEPS</i>	0.426	0.151		6.53***

^a A *z*-statistic from the binomial test corresponding to the difference in *FOOTSTEPS* is listed instead of a *t*-statistic.

* Statistically significant at 10% confidence level.

** Statistically significant at 5% confidence level.

*** Statistically significant at 1% confidence level.

control group, significant for three of the four measures. The mean values of the sales growth variables range from 0.094 to 0.116 for the going private sample, and from 0.193 to 0.263 for the control group; the absolute value of the t-statistics corresponding to the difference in the mean growth rates range from 1.33 to 2.56.

The significant differences in undistributed cash flow and growth rates across the two samples support Jensen's assertion that targets of going private transactions are characterized by significant undistributed cash flow and relatively low growth rates. These differences are especially notable since the control group was created from the same industries as the going private sample; we expect that the differences in cash flow and growth rates would be even larger across industries than within industries.

As expected, since we matched the control group by equity value, the mean difference in equity value is not significant. We also find no significant difference between the going private sample and control sample in terms of the *TAX/EQ* ratio.

To test the importance of takeover threats associated with firms that go private, we searched the *Wall Street Journal* for each control firm for any story concerning a takeover offer or takeover speculation during the year preceding and following the transaction of its going private counterpart. A variable, *FOOTSTEPS*, was created for both the going private sample and the control sample. *FOOTSTEPS* takes the value one if the firm received a competing bid or was the subject of takeover speculation in the *Wall Street Journal*, and zero otherwise.

FOOTSTEPS takes the value of one for 42.6% of the going private sample and for 15.1% of the control group. This difference, which is statistically significant at the 1% level, supports our earlier time series data (Table II) suggesting that going private transactions are induced, at least in part, by the threat of hostile takeovers.

A.2. Logit Analysis

Table IV reports results from several logit models in which the dependent variable is zero for the control firms and one for firms going private during our sample period. The independent variables in these models are *CF/EQ*, *TAX/EQ*, one of the four sales growth variables, and *FOOTSTEPS*. In Panel A, logit results from four equations estimated for the full sample are reported; the only difference in each equation is the growth variable that is included as an independent variable. The results in Panel A reveal a direct relationship between *CF/EQ* and the likelihood of going private; however, this relationship is statistically significant in only one of the four equations. The coefficients of all four growth variables have the anticipated negative sign, and two of these estimates are statistically significant. The coefficient of *FOOTSTEPS* is positive in all four equations and this variable is statistically significant in explaining the likelihood of going private in all four equations. The coefficient on *TAX/EQ* is never significantly different from zero but does have a positive sign in all four equations.

The free cash flow hypothesis argues that the threat of hostile bids induces managers to pay out excess cash flow. Hostile bids, especially for large companies,

Table IV
Logistic Regression Analysis of Likelihood
That Firm Went Private
(Chi-square Statistics in Parentheses)

Panel A: Full Sample 1980–1987				
Intercept	−0.400 (7.63)***	−0.281 (3.54)*	−0.335 (10.1)***	−0.489 (13.7)***
<i>CF/EQ</i>	0.584 (2.13)	0.521 (1.38)***	0.655 (2.61)	0.830 (4.26)**
<i>TAX/EQ</i>	1.525 (1.58)	1.809 (2.23)	1.512 (1.68)	1.604 (1.90)
<i>SALESGR5</i>	−0.493 (1.79)			
<i>SALESGR4</i>		−1.560 (7.75)***		
<i>SALESGR3</i>			−0.435 (2.70)	
<i>SALESGR2</i>				−0.473 (3.03)**
<i>FOOTSTEPS</i>	1.367 (37.1)***	1.360 (37.1)***	1.412 (41.0)***	1.420 (42.7)***
<i>N</i>	468	482	496	516
Model Chi-Square	49.4	61.0	41.0	60.4
Panel B: 1980–1983 and 1984–1987 Subsamples				
	1980–1983		1984–1987	
Intercept	−0.183 (0.90)***	−0.254 (1.89)	−0.738 (8.48)**	−0.922 (18.0)***
<i>CF/EQ</i>	0.282 (0.54)	0.463 (1.39)	2.442 (5.31)**	2.914 (8.04)**
<i>TAX/EQ</i>	0.432 (0.09)	0.719 (0.26)	3.550 (2.20)	3.880 (3.11)*
<i>SALESGR5</i>	−0.295 (0.71)		−1.100 (1.47)	
<i>SALESGR2</i>		−0.783 (2.04)		−0.320 (1.22)
<i>FOOTSTEPS</i>	0.993 (9.14)***	0.999 (9.62)***	1.641 (24.0)***	1.740 (33.3)***
<i>N</i>	224	234	244	282
Model Chi-Square	11.3	13.7	47.9	58.0

* Statistically significant at the 10% level.

** Statistically significant at the 5% level.

*** Statistically significant at the 1% level.

were rare before 1984. In addition, the data in Tables I and II strongly suggest that the types of firms that went private, and hence, the rationale for going private, changed substantially over these subperiods. Therefore, we estimated the logit models for two subperiods: 1980–1983 and 1984–1987. We expect the free cash flow hypothesis to do a better job of explaining the likelihood of going private during the second subperiod.

Panel *B* presents results corresponding to the two logit equations that were estimated for each of the two subperiods.¹⁷ With the exception of the estimated coefficient on *FOOTSTEPS*, which is positive and significant, the logit results estimated over the 1980–1983 period have little explanatory power. The remaining estimated coefficients all have the expected signs but none are significantly different from zero.

Contrasting sharply with the results for the earlier period, the logit results for the 1984–1987 period support the free cash flow hypothesis. The estimated coefficient on *CF/EQ* is positive and significant in both equations estimated over the 1984–1987 period. The estimated coefficients on *FOOTSTEPS* are positive and significant at the 99% level, and these estimated coefficients (1.641 and 1.740) are substantially larger than the corresponding coefficients estimated over the 1980–1983 period (0.993 and 0.999, respectively). The estimated coefficients on the sales growth variables are not significant though they are negative as expected under the free cash flow hypothesis. *TAX/EQ* enters both equations with a positive estimated coefficient and is significant at the 10% level in one of the equations.

B. Determinants of Premiums Paid in Going Private Transactions

In addition to explaining variation in the likelihood of going private, the free cash flow hypothesis should explain cross-sectional variation in premiums paid in going private transactions. If an important source of stockholder gains in going private transactions is the mitigation of agency problems associated with free cash flow, then premiums paid in these transactions should be directly related to the level of the target's free cash flow. Hence, we estimated these premiums as a function of *CF/EQ*, *TAX/EQ*, and *SALESGR5* for the entire sample and for the two subsamples consisting of going private transactions during 1980–1983 and 1984–1987.¹⁸

We also estimated the premium equation on two additional subsamples: firms in which the percent of equity owned by managers prior to the going private transaction was below the median value and firms in which managerial holdings were above the median value. This distinction was made as a further test of the free cash flow hypothesis. Jensen argues that free cash flow is a problem when agency costs are high. The percent of equity owned by management is often used as a proxy for the severity of potential agency problems; the smaller this percent, the greater the potential agency costs. If so, we expect that the free cash flow explanation for going private transactions would be especially powerful in explaining premiums paid in going private transactions involving firms in which managers owned little equity prior to the transaction. The average percent of equity owned by managers, prior to the going private stockholders, is 23.4% for

¹⁷ We do not report results from the equations that include *SALESGR3* and *SALESGR4* as independent variables. The estimated logit regressions including these variables do not differ significantly from the results reported in Panel *A* of Table IV.

¹⁸ Again, for the sake of brevity, we only report results corresponding to the equation in which *SALESGR5* is the proxy for growth opportunities. The results do not differ significantly when the other growth variables are used.

Table V
Ordinary Least Squares Estimates of
Premiums for Full Sample and Subsamples of
1980–1983, 1984–1987, Low Management
Holdings, and High Management Holdings

	Full Sample	1980– 1983	1984– 1987	Low Mgmt. Holdings	High Mgmt. Holdings
Intercept	0.333 (14.8)***	0.397 (11.9)**	0.268 (7.94)***	0.250 (7.21)***	0.350 (10.3)***
<i>CFEQ</i>	0.177 (1.79)*	0.119 (0.91)	0.299 (2.01)**	0.350 (2.69)***	0.056 (0.36)
<i>TAXEQ</i>	0.044 (0.24)	−0.235 (−0.98)	0.111 (1.59)	0.222 (0.82)	−0.015 (−0.06)
<i>SALESGR5</i>	0.008 (0.13)	0.002 (0.03)	0.111 (0.69)	0.495 (2.88)	−0.034 (−0.49)
<i>N</i>	236	91	145	119	107
<i>R-Squared</i>	0.017	0.015	0.052	0.119	0.004

* Statistically significant at 10% confidence level.

** Statistically significant at 5% confidence level.

*** Statistically significant at 1% confidence level.

the entire sample.¹⁹ This average is 6.44% for firms below the median, and 41.0% for firms above the median.

Table V reports the results from ordinary least squares regressions of premiums on the three independent variables. The results generally are consistent with the free cash flow hypothesis. When estimated over the entire sample, the coefficient on *CF/EQ* is positive and significant at the 90% level. When the sample is decomposed into two periods, we find that the significant relation between *CF/EQ* and premiums holds only during the latter period. Similarly, decomposing the sample into firms with low and high equity holdings by managers reveals that the significant relation between *CF/EQ* and premiums holds only for the sample of firms in which managers owned relatively little equity prior to the going private transaction. The *R*-squared corresponding to the estimate over the sample consisting of firms with relatively low managerial equity holdings is notably higher (11.9%) than the corresponding *R*-squared for the entire sample (1.7%).

The only equation in which *SALESGR5* enters with a significant estimated coefficient is the one estimated over the sample consisting of low managerial equity holdings. This coefficient enters with a positive coefficient, which seemingly is inconsistent with the free cash flow hypothesis. As we mentioned above, however, it is possible that, for some firms, *SALESGR5* may actually proxy for the tendency of managers to expend free cash flow on value-reducing projects that expand the size of their firms. If so, one might interpret the positive coefficient on *SALESGR5* as consistent with the free cash flow hypothesis. However, recall that the sales growth variables generally entered the logit

¹⁹ These data were obtained from the most recent proxy statement preceding the going private transaction and were available for 253 firms in the sample.

equations with negative estimated coefficients. We presently do not have an explanation for these seemingly inconsistent results.

IV. Conclusion

The results in this paper are consistent with the free cash flow hypothesis concerning the source of stockholder wealth gains in going private transactions. By comparing firms that went private with a control group, we find that the likelihood of going private is directly related to the ratio of undistributed cash flow to equity value, and inversely related to the growth rate in sales. Furthermore, we find that premiums paid to shareholders in going private transactions are positively and significantly related to undistributed cash flow.

Our results are strongest from 1984 through 1987 when the threat of a hostile takeover was greater. If firms that went private were likely targets of hostile takeover attempts, then managers may have strong incentives to preempt hostile bids by paying out the excess cash flow. In addition, the positive relation between premiums paid to shareholders and cash flow is especially strong among firms where managers owned relatively little equity prior to the going private transactions, the firms where agency costs are expected to be highest.

To some extent, our results are consistent with other possible sources of wealth gains. For example, proponents of the tax savings hypothesis could interpret our measure of undistributed cash flow as a proxy for debt capacity (and hence potential tax benefits), confirming the tax savings hypothesis. Future research will include an additional test of the free cash flow hypothesis to disentangle these hypotheses. We will study differences in the use of cash flow between firms that went private and the control firms. Market reaction to announcements of major investment projects, such as acquisitions, capital expenditures and research and development projects, will be measured for firms that went private and the corresponding control group.²⁰ While the tax hypothesis predicts no significant difference in market reaction to these announcements, the free cash flow hypothesis predicts that the reaction should be significantly more negative for the going private sample.

²⁰ Mitchell and Lehn (1988) use a similar technique.

Appendix A: Firms Included in Sample with Event Dates

Going Private Company	Event Date	Going Private Company	Event Date
ACF INDUSTRIES INC	831220	AMALGAMATED SUGAR CO	820902
APL CORP	860926	AMDISCO CORP	820901
ARA SERVICES	840912	AMERACE CORP	840620
AERONCA INC	860520	AMERICAN APPRAISAL ASSOC	840629
AFTER SIX INC	840514	INC	
ALAMITO CO	851104	AMERICAN BAKERIES CO	861022
ALBANY INTL CORP	830413	AMERICAN EQUITY INVT	840222
ALLIED VAN LINES INC	810929	TRUST	
ALOHA INC	860314	AMERICAN STERILIZER CO	840919
ALTAMIL CORP	830627	AMSTAR CORP	830929

Going Private Company	Event Date	Going Private Company	Event Date
AMSTED INDUSTRIES	851104	CRITON CORP	820824
ANDERSON INDUSTRIES INC	860317	CUNNINGHAM DRUG STORES	801027
ARCATA CORP	810817	INC	
ARLEY MERCHANDISE CORP	860626	DAN RIVER INC	821022
ATLAS VAN LINES INC	840529	DATA SYSTEMS ANALYSTS INC	800516
AVONDALE MILLS	860205	DELLWOOD FOODS	820729
AXIA INC	840217	DENNY'S INC	840530
BDI INVESTMENTS CORP	830413	DENTSPLY INTERNATIONAL	820514
BAYLESS (A.J.) MARKETS INC	840113	INC	
BAYSWATER RLTY & CAPITAL CP	860623	DEVON GROUP	820715
BEATRICE CO	851016	DEVRY INC	870518
BEELINE INC	840621	DICKEY-JOHN CORP	870714
BELKNAP INC	840125	DICOMED CORP	871013
BELL & HOWELL CO	871106	DILLINGHAM CORP	821116
BELSCOT RETAILERS INC	800114	DINNER BELL FOODS INC	870825
BERKELEY BIO-MEDICAL INC	820316	DIXICO INC	850506
BEVERAGE MANAGEMENT INC	821015	DR PEPPER CO	831117
BIBB CO	850625	DUCKWALL ALCO STORES INC	850108
BICKFORD CORP	820222	DURALITH CORP	850426
BIG V SUPERMARKETS-CL A	870615	DURO-TEST CORP	870824
BILTRITE CORP	841220	EASCO CORP	850419
BLUE BELL INC	840724	ECKERD (JACK) CORP	851010
BLUEWATER OIL & GAS LTD	840926	EDGCOMB STEEL NEW ENG INC	851004
BOMAINÉ CORP	840515	ELDER-BEERMAN STORES CORP	870313
BOND INDUSTRIES	801105	ELIXIR INDUSTRIES	811027
BORG-WARNER CORP	861125	EXECUTIVE INDUSTRIES	810204
BROOKS FASHION STORES	840806	FAIR LANES	861128
CCI CORP	820924	FINANCIAL GENERAL BANK-SHARE	820302
CADENCE IND CORP	830415	FISHER FOODS INC	870925
CALIFORNIA LIFE CORP	810318	FLICKINGER (S.M.) CO INC	840319
CANNON MILLS CO	820105	FRIONA INDUSTRIES INC	850208
CAPITOL FOOD INDS INC	820827	FUNTIME INC	871006
CARESSA GROUP INC	841015	GIT INDUSTRIES INC	801201
CARROLS CORP	860924	GATEWAY INDUSTRIES INC	810806
CECO INDS INC	860415	GLOSSER BROTHERS INC	850128
CEDAR POINT	830321	GOLD MEDALLION CORP	810604
CELLU-CRAFT INC	830908	GOLDEN STATE FOODS CORP	800414
CENTRAL SOYA CO	850314	GOLDEN WEST HOMES	851223
CHADWICK-MILLER INC	840525	GRANTREE CORP	870701
CLEVETPAK CORP	851022	GREAT AMERICAN INDUSTRIES	841024
CLOW CORP	850328	GUARDIAN INDUSTRIES	840709
COCA-COLA BOTTLING OF MIAMI	830131	GULFSTREAM LAND & DEVELOPMENT	850520
COCA-COLA BOTTLING CO OF NY	801124	HARTE-HANKS COMMUNICATIONS	840327
COLE NATIONAL CORP	840604	HOUSE OF RONNIE	810312
COLOR TILE INC	860815	HYATT INTL CORP-CL A	810323
COLUMBUS MILLS INC	861104	INTERCOLE INC	841210
COMTEL CORP	810326	INTL CONTROLS CORP	870423
CONAIR CORP	841212	INTERSTATE BAKERIES CORP	870811
CONDEC CORP	840316	JETERO CORP	820426
CONE MILLS CORP	831129	JEWELCOR INC	871023
CONTINENTAL GROUP	840605	JONES & VINING INC	870123
COOK INTERNATIONAL INC	841109	JOY MFG CO	861222
COPELAND CORP	810217	KAISER STEEL CORP	830509
COWLES BROADCASTING INC	840622	KAMPGROUNDS OF AMERICA	801126
COX COMMUNICATIONS INC	850408	KANE FURNITURE CORP	820629
CRADDOCK-TERRY SHOE	851115		

Going Private Company	Event Date	Going Private Company	Event Date
KANE-MILLER CORP	831031	PAY'N PAK STORES	870402
KELLER INDUSTRIES INC	830624	PAY'N SAVE CORP	840831
KNUDSEN CORP	821018	PIZZA INN INC	860710
KROY INC	860714	PONDEROSA INC	861201
LAMSTOM (M.H.) INC	830325	POST CORP	830908
LEAR SIEGLER INC	861030	PROFESSIONAL CARE SVCS INC	840306
LEASEWAY TRANSPORTATION COR	861113	PUEBLO INTERNATIONAL INC	871224
LEHIGH PRESS INC	861020	PUREX INDUSTRIES INC	820128
LESLIE FAY INC	811030	PURITAN FASHIONS CORP	831114
LEVI STRAUSS & CO	850711	QUESTOR CORP	820322
LEVITZ FURNITURE CORP	840601	RAPID-AMERICAN CORP-DE	800411
LIBERTY FABRICS OF NY INC	831006	RAYMOND INTL INC-DELAWARE	830505
LOEHMANN'S INC	800925	REEVES BROTHERS INC	820204
LYNDEN INC	870806	RELIANCE GROUP INC	810714
LYON METAL PRODUCTS INC	840118	REPUBLIC HEALTH CORP	860103
MACY (R.H.) & CO	851021	RESEARCH-COTTRELL	870608
MALONE & HYDE INC	840611	RESTAURANT ASSOC INDS INC	870825
MARLEY CO	801201	REVCO D. S. INC	860311
MASSMUTUAL MTG & RLTY INVS	801120	REVLON GROUP INC	870308
MASTERS INC	801120	REVERE COPPER & BRASS INC	860320
MAYFLOWER GROUP IN	860929	RIBLET PRODUCTS CORP	860812
MEDFORD CORP	840709	RIEGEL TEXTILE CORP	850620
MEENAN OIL INC	830824	RIO GRANDE INDUSTRIES	841001
METROMEDIA INC	831206	RIVAL MFG CO	850924
MEYER (FRED)	810603	ROYAL CROWN COS INC	840111
MIDLAND GLASS CO	831018	RUSSELL STOVER CANDIES INC	810922
MIDLAND-ROSS CORP	860701	RUSTY PELICAN RESTAURANTS	870624
MISSISSIPPI VALLEY GAS CO	840326	SFN COS INC	840823
MOHAWK RUBBER CO	831102	SAFEWAY STORES INC	860708
MORSE SHOE CO	870529	SAFE-ALLEN & CO INC	870731
MOUNT VERNON MILLS INC	820127	SCHAEFER (F.&M.) CORP	810220
NFA CORP	840807	SCHOLASTIC INC	861022
NATHANS FAMOUS INC	861104	SCOA INDUSTRIES INC	850701
NATIONAL GYPSUM CO	851125	SCOTT CABLE COMMUNICA-TIONS	870615
NATIONAL SHOES INC	841210	SEAMAN FURNITURE CO	871109
NATIONAL SPINNING CO	800821	SEILGMAN & LATZ INC	850410
NIAGARA FRONTIER SERVICES	830127	SETON CO	870316
NOEL INDUSTRIES	870615	SHELLER-GLOBE	860214
NORRIS INDUSTRIES INC	810723	SHOE-TOWN INC	871215
NORTH AMER COMM CORP-NEW	870930	SIGNODE CORP	820301
NORTH AMERICAN ROYALTIES	830427	SINGER CO	871031
NORTHWEST INDUSTRIES	850322	SOUNDESIGN CORP	811123
NUTRI/SYSTEM INC	860205	SOUTHLAND CORP	870702
OWENS-ILLINOIS INC	861211	SPECTRADYNE INC	870526
PT COMPONENTS INC	860527	SPLENTEX INC	800828
PACIFIC REALTY TRUST	821116	STANDARD COOSA-THATCHER	820323
PAMIDA INC	800620	STANDUN INC	850529
PANDICK INC	861112	STATER BROS INC	870513
PAPERCRAFT CORP	850409	STORER COMMUNICATIONS INC	850319
PARAMOUNT PACKAGING	850121	SUPERMARKETS GENERAL CORP	870309
PARGAS INC	830216	SUSQUEHANNA CORP	870916
PARISIAN INC	870728	SYBRON CORP	860113
PARSONS CORP	840921	TAFT BROADCASTING CO	870306
PAT FASHIONS INDUSTRIES	811106	TANNETICS INC	830203
PAWNEE INDUSTRIES INC	860930	TECHAMERICA GROUP INC	870721
		TI-CARO INC	831202

Going Private Company	Event Date	Going Private Company	Event Date
TOPPS CHEWING GUM	831116	VAN DUSEN AIR INC	850823
TOWERMARC	840419	VAUGHAN-JACKLIN CORP	830131
TRIANGLE PACIFIC CORP	860304	VIDEO CORP OF AMERICA	841005
TWENTIETH CENTURY-FOX FILM	810220	VOLUME MERCHANDISE	840611
II MORROW INC	861007	WALTER (JIM) CORP	870716
UI GROUP INC	831229	WARNACO INC	851031
UNIROYAL INC	850409	WEHR GROUP	821027
U S SUGAR CORP	830916	WHEREHOUSE ENTERTAINMENT INC	871013
UNITOG CO	831101	WILLIAMHOUSE REGENCY INC	820708
UNIVERSAL CIGAR CORP	830621	WOMETCO ENTERPRISES INC	830921
UP-RIGHT INC	870916	WOODWARD & LOTHROP INC	840222
VALLE'S STEAK HOUSE	811120	WORK WEAR CORP INC	851029
Additional Going Private Companies Identified in <i>Wall Street Journal Index</i> with no Compustat Data Available		Additional Going Private Companies Identified in <i>Wall Street Journal Index</i> with no Compustat Data Available	
AMERICAN FINANCIAL CORP	801126	FRUEHAUF	860327
BARTON BRANDS	820524	LEASCO	810714
BURLINGTON INDUSTRIES	870424	MACANDREWS & FORBES	830923
C.H.B. FOODS INC	850117	MARY KAY COSMETICS	850530
CALTON INC	850411	PRF CORP	800606
CLEVITE INDUSTRIES	870406	PALOMAR FINANCIAL	830603
EDGEWATER CORP	811106	PERFECT FIT INC	850513
EMPIRE INC	821021		

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