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To live or let die? An empirical analysis of piecemeal voluntary corporate liquidations [1]

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Abstract

This paper is an in-depth investigation of 61 publicly-traded firms that chose to liquidate voluntarily on a piecemeal basis during the 1970s and 1980s. In comparison with their industry peers, these firms have lower Tobin's Q, a higher percentage of equity ownership by management and the board, a higher incidence of a member of the corporation's founding family in a key executive position or on the board, and a higher incidence of asset sales and prior attempts to transfer control of the firm. The average excess stock return of 20% around liquidation announcements is positively correlated with the fraction of stock owned by management and the board. These results suggest that firms that make the value enhancing decision to voluntarily liquidate confront low future growth opportunities, but the absence of future growth opportunities is not sufficient to bring about this decision. It is also necessary that decision makers have a vested interest in the outcome, either because of their ownership stake or because of their family affiliation with the business, and that the valuation consequences of the decision are greater, the more closely aligned are managerial and shareholder interests. © 1997 Elsevier Science B.V.

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1. Introduction

This study is a detailed analysis of 61 publicly traded U.S. corporations that began and completed voluntary piecemeal liquidations during the period 1970–1991. Viewed from one perspective, a sample comprised of 61 observations over a 21-year span might relegate piecemeal voluntary liquidations to footnote material in the annals of corporate restructuring. Viewed from another perspective, on average, each year, three major U.S. firms voluntarily decide to discontinue operating as an integrated enterprise and to sell off all assets on a piecemeal basis. For many observers, this number may be surprisingly high.

The primary purpose of this study is to provide a detailed and comprehensive analysis of the characteristics and outcomes for publicly traded firms that choose to liquidate voluntarily. Along the way, however, the study also provides statistical and inferential evidence regarding larger themes in corporate finance and corporate governance. In particular, this study provides evidence concerning 'managerial theories' of the firm and the related debate as to whether corporate managers act in their own interests or in shareholders' interests when the two sets of interests are in conflict. [2] Unless they are compensated in some other way, for entrenched corporate executives, piecemeal liquidation of the firm represents a form of economic hara-kiri in which entrenched corporate executives voluntarily forfeit whatever rents or above market perquisites (if any) that accompany their positions for the (potential) benefit of shareholders. Prior studies by Kim and Schatzberg (1987), Hite et al. (1987), Skantz and Marchesini (1987) and Kudla (1987) document that share prices increase 10% to 12% in response to announcements of voluntary corporate liquidations. There is, thus, the appearance that managers altruistically throw themselves upon their economic swords for the sake of shareholders. This evidence appears to reject managerial theories of the firm. Our detailed analysis indicates that the story is not that simple.

The story appears to run as follows: First, for some companies, voluntary liquidation accompanies an idiosyncratic event in the life (or death) of the firm. For example, the Aguirre Company had operated in Puerto Rico as a producer of raw and semi-refined sugar, molasses, and related products since 1899. Actions brought by the Commonwealth of Puerto Rico in 1970 resulted in the transfer (or

[2] The theoretical and empirical literature on this subject is voluminous. Examples of the theoretical literature include Berle and Means (1932), Marris (1963), Manne (1965), Jensen and Meckling (1976) and Stulz (1988). Examples of the empirical literature include Holderness and Sheehan (1988), Morck et al. (1988a,b), McConnell and Servaes (1990) and Martin and McConnell (1991).

expropriation) of nearly all sugar-related assets away from the company. Following the expropriation, the primary assets remaining with the company included certain divisions engaged in the sale and distribution of construction materials and agricultural equipment. In 1977, after a lengthy court battle, the final judgment rendered on the expropriation claims awarded $36.5 million to the company from the Commonwealth of Puerto Rico. After reviewing available alternatives, including the expansion of the existing businesses and the sale or merger of the entire company — a process that involved preliminary talks through an investment banker with over 30 interested parties — the board of directors concluded that the action most beneficial to shareholders was liquidation of the company's assets on a piecemeal basis. The board approved the final plan of liquidation on March 7, 1978; the plan was approved by shareholders on December 15, 1978; and the final liquidating dividend was paid on December 1, 1981.

Second, even though idiosyncratic events play a role in the voluntary end of life for some companies, the sample is characterized by certain economic, organizational, and statistical regularities. Each of these regularities deserves separate enumeration and elaboration. First, firms that liquidate voluntarily have low Tobin's Qs relative to their industry peers (where Q is measured as the market value of equity plus the book value of debt divided by the book value of assets). Second, the current accounting rates-of-return-on-assets for the two sets of firms are about equal. On the presumption that the market-to-book ratio measures future growth opportunities, these data suggest that it is the absence of future growth opportunities rather than current profitability that is important in the decision by corporate officers to dissolve the firm.

Third, even after controlling for differences in growth opportunities, current profitability, and other financial characteristics of the firms, the fraction of shares owned by corporate officers and members of the board of directors is significantly higher in firms that choose to liquidate voluntarily than in their matched industry peer group. This evidence is consistent with various managerial theories of the firm which predict that managers are more likely to act in shareholders' interests, the higher is their personal ownership position in the firm's equity.

Fourth, firms that voluntarily choose to liquidate are characterized by a high incidence of the presence of the corporation's founder or members of the founder's family as key senior executives and/or members of the board. Even after controlling for share ownership and various financial characteristics of the firms, the presence of the founder or the founding family is significantly higher in firms that choose to liquidate than in their industry peer group. This result is consistent with theories and empirical studies that emphasize the role of influential investors as important forces in directing the firm toward value maximizing decisions. [3]

[3] See for example, Morck et al. (1988b) and Denis and Denis (1995).

Fifth, on a univariate basis, for firms that choose to liquidate voluntarily, the composition of the board of directors is such that the fraction of inside and/or affiliated board members is significantly greater for this sample than is the fraction of inside and/or affiliated board members of their industry peer group. However, on a multivariate basis, after controlling for the fraction of shares owned, the results indicate that it is not board composition, per se, but rather the board's ownership of the firm's shares that plays a significant role in the decision to liquidate.

Sixth, on neither a univariate nor a multivariate basis is the utilization of debt significantly different between firms that choose to liquidate and their industry counterparts. This result suggests that debt and the associated requirement that funds be paid out to service the debt is not an important factor in the decision of firms that choose to liquidate on a piecemeal basis.

Seventh, the fraction of firms that liquidate voluntarily that had asset sales over the three-year interval prior to the liquidation decision is significantly greater than the fraction of firms in the industry peer group that had asset sales over the same interval. Similarly, a significant fraction of firms in the sample actively sought acquirors for the whole firm in the three years preceding the liquidation decision, but these attempts at finding an acquiror for the whole firm failed, often because the price offered was deemed to be too low. Thus, the decision to liquidate the firm appears to be the culmination of a multistage effort to transfer assets to higher valued uses.

Eighth, the results of an event study centered on liquidation announcement events, including the initial announcement, board approval, and shareholder approval, are consistent with those of previous studies in that excess returns are positive and statistically significant, but at nearly 20%, they are much larger than reported in earlier studies. Cross-sectional regressions indicate that the value increase associated with liquidation announcements is positively related to the fraction of shares owned by corporate officers and members of the board and negatively related to current profitability. Thus, the wealth gain for shareholders is greater when management and the board own a larger stake in the firm and when assets are relatively less well utilized as measured by current profitability. One interpretation of this result is that, conditional on the decision to liquidate the firm, the market expects managers who have a larger ownership stake to redeploy assets more efficiently than managers who have a lower ownership stake.

Finally, we compare the discounted value of the stream of liquidating dividends paid with the stock price prior to the liquidation announcement. Corporate liquidations provide a laboratory to study whether standard capital budgeting techniques indicate that liquidation decisions are positive net present value (NPV) projects given ex post cash flows. On average, the discounted value of ex post cash flows is 16.6% greater than the firm's pre-announcement stock price. That is, assuming that actual cash flows are an unbiased estimate of expected cash flows, standard capital budgeting techniques indicate that, on average, corporate liquida-

tions are positive NPV projects. Furthermore, the average of the announcement period event returns (i.e., 19.8%) is not significantly different from the calculated percentage NPV of the project. This result provides support for the use of traditional discounted cash flow analysis in capital budgeting.

The remainder of the paper reviews prior literature on voluntary liquidations (Section 2), describes the procedure used to identify the sample (Section 3), presents background information regarding events leading up to the liquidation decision and descriptive data on the financial characteristics of the firms in the sample (Section 4), presents the results of logistic regressions in which the firms in the liquidation sample are compared with their industry peers (Section 5), reports the results of an event study surrounding announcements of voluntary liquidations and cross-sectional regressions in which the announcement period excess return is the dependent variable (Section 6), describes the cash payoffs received by shareholders of the liquidating firms (Section 7), comments on the role of taxes in the decision to liquidate (Section 8), and summarizes the results (Section 9). Table 1 lists the firms in the sample as a resource for other scholars. Appendix A provides a narrative accounting of events leading up to and surrounding the decision to liquidate by eight of the firms in the sample. These narratives attempt to provide a description of the circumstances that surround a 'typical' firm that voluntarily liquidates.

2. Related studies

As regards prior studies of voluntary liquidations, our analysis can be viewed, at least in part, as updating results reported elsewhere and as providing a more comprehensive analysis of the questions at issue with a larger and more recent sample. For example, in their study, Kim and Schatzberg (1987) analyze a sample of 73 voluntary liquidations that were announced over the period 1963 through 1982 of which 30 were piecemeal liquidations; Hite et al. (1987) examine 49 piecemeal voluntary liquidations that were announced between 1962 and 1984; Skantz and Marchesini (1987, 1992) consider 37 piecemeal voluntary liquidations announced between 1970 and 1984; and Kudla (1987) examines 25 piecemeal voluntary liquidations announced between 1970 and 1982. These studies focus on the valuation effects of voluntary liquidations. Each reports that announcements to liquidate voluntarily are accompanied with significant stock price increases. For instance, Hite et al. report a two-day announcement period excess return of 12.24% at the initial announcement. Kim and Schatzberg report an average excess return of 11.44% around the initial announcement and 2.03% around the shareholder approval date. These authors do not, however, conduct cross-sectional regressions to determine whether the excess returns are correlated with the characteristics of the firms involved, although Hite et al. do report significantly larger announcement period excess returns for firms that have not been the target of a prior control attempt.

Table 1
List of firms in the sample of voluntary liquidations and dates of initial announcement and shareholder approval of the liquidating decision

Name of firm	Initial announcement date	Shareholder approval date	SIC code	Name of firm	Initial announcement date	Shareholder approval date	SIC code
Aguirre Co.	3/9/77	12/15/78	6500	Gulf Broadcast Co.	2/1/85	6/19/85	4833
American Controlled Industries	1/29/86	11/17/86	2670	Gulf United Corp.	6/30/82	1/4/84	6311
American Manufacturing Co., Inc.	6/28/79	9/28/79	2200	Handyman Corp.	9/26/86	12/18/86	5211
American Medical Affiliates, Inc.	10/30/81	5/28/82	8051	Heizer Corp.	12/1/83	2/28/84	6799
Amerifin Corp.	2/18/83	11/30/83	6799	Hines (Edward) Lumber Co.	7/5/85	10/23/85	5031
ANTA Corp.	1/20/84	4/26/84	3350	Hittman Corp.	10/12/82	11/22/82	3679
Apco Oil Corp.	3/2/76	10/27/77	2911	HS Group, Incorporated	7/13/84	8/30/84	100
Barber Oil Corp.	3/3/80	12/29/80	1220	Imark Industries, Inc.	10/14/87	2/11/88	5080
Bates Manufacturing Co.	3/1/79	5/24/79	1220	Kaiser Industries Corp.	5/6/76	4/20/77	3312
Bayuk Cigars, Inc.	10/6/81	12/21/81	2100	Kirby Industries	11/19/74	10/22/75	4400
Canal-Randolph Corp.	9/24/83	4/16/84	6512	Murray Mortgage Investors	11/19/80	4/29/81	6798
Cardiff Communications, Inc.	6/18/86	12/9/86	4841	OKC Corp.	7/26/79	5/13/80	2911
City Investing Co.	8/23/84	12/12/84	6799	Overseas National Airways, Inc.	4/2/76	9/7/78	4522
Columbia Corp.	2/11/76	5/28/76	2400	Panax Corp.	7/16/80	8/28/80	2711
Conroy, Inc.	8/17/83	12/30/83	2510	Pasco, Incorporated	5/22/75	12/30/75	2911

Cooper Laboratories, Inc.	10/1/82	6/28/84	2835	Procor, Incorporated	9/12/79	4/9/80	200
Cowles Communications, Inc.	3/30/82	11/5/82	4833	Reeves Telecom Corp.	1/19/79	5/17/79	4832
Dairy Queen Stores	12/19/77	2/27/78	5812	R.H. Medical Services, Inc.	1/14/80	8/27/80	3851
DCL Incorporated	2/21/79	1/14/80	7377	Rockower Brothers, Inc.	8/4/79	12/18/79	5600
Drewry Photocolor	5/2/88	5/2/88	7384	Rossmoor Corp.	1/25/80	6/17/81	6552
Electronic Tabulating Corp.	4/2/84	6/14/84	7374	Royal Castle System, Inc.	4/14/75	7/31/75	5812
Empire Financial Corp.	7/26/74	1/23/75	6036	San Juan Racing	7/7/77	10/13/81	7948
Financial Resource Corp.	4/1/82	6/15/82	6172	Telecor, Incorporated	8/17/78	4/3/79	7359
First Fidelity Investment Trust[a]	2/28/78	2/28/78	6798	Terrydale Realty Trust	2/9/81	1/28/82	6798
Gemtec Corp.	1/8/85	7/15/86	3842	Tishman Realty and Construction Co., Inc.	7/26/76	11/7/77	6500
Genway Corp.	11/24/86	12/22/86	6172	Traileranch o	6/17/77	7/3/78	6500
Glasrock Medical Services, Inc.	10/21/82	1/3/83	7350	U.S. Realty Investments[a]	2/18/81	1/6/82	6798
Global Gas	10/12/77	2/16/79	1311	Unity Buying Service Co., Inc.	9/15/83	4/27/84	5961
Gold Medallion Corp.	6/5/81	11/30/81	5122	Visual Sciences, Inc.	5/18/82	8/4/82	3661
Great Basins Petroleum Co.	11/11/80	8/26/81	1311	Western Development Corp.	1/2/84	4/20/84	200
Gross Telecasting, Inc.	3/21/84	5/31/84	4833				

[a]Trust only required Trustee Approval.

Ghosh et al. (1991) are interested in the operating and financial characteristics of firms that voluntarily liquidate. They consider a sample of 49 firms that announced voluntary piecemeal liquidations over the period 1962 through 1984. As do we, they conduct logistic regressions in which their sample of liquidating firms is compared with a control sample of non-liquidating firms in the same industries. They report that, in comparison with the non-liquidating sample, the liquidating firms are characterized by declining net sales, prior takeover attempts, and higher insider stock ownership (although the last variable is not always significant at the 0.05 level). They further report that P/E ratios and leverage are not different between the two samples. They interpret their evidence to indicate that "...the concurrence of high insider ownership and prior takeover attempts possibly suggests that for self-interested managers, voluntary liquidation is a means to frustrate unfriendly suitors" (p. 774).

In addition to the valuation effects and financial and operating characteristics of firms that undertake voluntary liquidations, we are interested in the events leading up to the decision to liquidate (including asset sales, takeover attempts, dividend cuts, loan defaults and so forth) and in the governance structure of these firms. Our motivation is twofold: First, because of the finality of the event, piecemeal voluntary liquidations are interesting events in their own right and, thus, merit comprehensive analysis. Second, voluntary liquidations are interesting because of what they can reveal about other prominent issues in corporate finance such as the role of stock ownership, the role and composition of the board of directors, the role and presence of founding families, the role of blockholders, and the role of leverage. These issues are particularly important when the firm confronts decisions in which value maximization potentially conflicts with managerial self interest. The decision to liquidate the firm clearly qualifies as such an event.

3. Sample selection

Our definition of a piecemeal voluntary liquidation requires that all of the assets of the firm be sold, that the assets be sold to at least two different buyers, that the firm cease to exist as a going concern, and that the firm had not previously filed for bankruptcy. We further require that the liquidation process be completed by year-end 1991. [4] We require that the liquidation be complete so as to be able to document the actual liquidating cash flows received by shareholders. To compile the sample of voluntary piecemeal liquidations, the Compustat research file and the CRSP NYSE, AMEX, and NASDAQ tapes were searched to identify all stocks

[4] A liquidation is considered complete during the year in which the final liquidating distribution is paid to shareholders as identified by the Prentice-Hall *Capital Adjustment Reporter* and/or the Commerce Clearing House *Capital Changes Reporter*.

delisted over the period 1970 through 1991 due to 'liquidation'. This search identified 365 possible piecemeal voluntary liquidations. To determine whether a firm satisfies our criteria, a search was conducted of the *Wall Street Journal*, Moody's *Industrial, Financial, and Transportation Manuals*, the Prentice Hall *Capital Adjustment Reporter*, Commerce Clearing House's *Capital Changes Reporter*, and corporate 10k's and proxy statements. This search indicated that 270 of the sample candidates were delisted due to merger, a chapter 7 liquidation, a chapter 11 bankruptcy filing, or a going private transaction. For 34 of the firms,

Table 2
Frequency distribution of voluntary corporate liquidation announcements and completions each year for 61 publicly traded firms that liquidated voluntarily on a piecemeal basis over the period 1970–1991. These firms both initiated and completed the liquidation between 1970 and 1991

A. Frequency distribution of liquidation announcements for the 61 firms in the sample

year of announcement	number of announcements for liquidations completed by 1991	year of announcement	number of announcements for liquidations completed by 1991
1970	—	1981	5
1971	—	1982	7
1972	—	1983	5
1973	—	1984	6
1974	2	1985	3
1975	2	1986	4
1976	5	1987	1
1977	5	1988	1
1978	2	1989	—
1979	7	1990	—
1980	6	1991	—

B. Frequency distribution of liquidation completions for the 61 firms in the sample

year of completion	number of completions of liquidations announced after 1970	year of completion	number of completions of liquidations announced after 1970
1970	—	1981	4
1971	—	1982	2
1972	—	1983	4
1973	—	1984	10
1974	—	1985	7
1975	—	1986	9
1976	1	1987	6
1977	1	1988	2
1978	1	1989	4
1979	3	1990	4
1980	2	1991	1

data are insufficient to determine precisely why the firm was delisted. The search definitively identified 61 firms delisted due to a voluntary piecemeal liquidation that was completed by the end of 1991.

Panel A of Table 2 presents a frequency distribution of the sample according to the calendar year in which the first announcement regarding the decision to liquidate appeared in the press and panel B gives a frequency distribution according to the year in which the liquidation was completed. Because the average (median) number of years from announcement to completion of a voluntary piecemeal liquidation is 4.04 (3.59) and because we require that the liquidation be completed by year-end 1991, the table gives the appearance that piecemeal liquidations dwindle to nothing in the latter half of the 1980's. In fact, our sample restrictions preclude the following announcements from entering the sample: three announcements in 1988, five in 1989, five in 1990 and four in 1991. The shortest time period elapsed from initial announcement to completion of the process is six months for Cardiff Communications. The longest time period elapsed is 13.5 years for San Juan Racing Association. On average, the first announcement in the press precedes the shareholder approval date by eight months (median = 6 months) and, on average, the time elapsed from shareholder approval to payment of the final dividend is 3.44 years (median = 3.09 years).

A review of Table 1 indicates some clustering of voluntary liquidations in the natural resources, real estate, and communications industries broadly defined. However, on a four-digit basis, the 61 voluntary piecemeal liquidations encompass 45 different SIC codes.

4. Background events and characteristics of firms that voluntarily liquidate

4.1. Background events

To identify events leading up to and surrounding the decision to voluntarily liquidate the firm, a search was conducted of the popular press including the *Wall Street Journal*, the *Dow Jones News Retrieval Service*, business periodicals, and such diverse trade publications as the *Oil and Gas Journal*, *Cable Television Business*, *Vending Times* and so on. For each firm, we also read annual reports, 10k's, and proxy statements. These sources were used to construct a narrative for each firm in the sample, eight of which are presented in Appendix A and the remainder of which are available from the authors. Major events that occurred in the three years preceding the liquidation decision include dividend omissions (5 firms), defaults on loan payments (6 firms), debt renegotiations (7 firms), operational restructuring other than the sale of assets (5 firms), turnover in top management (8 firms), solicitations of a buyer for the firm (9 firms), friendly merger attempts (15 firms), hostile takeover attempts (11 firms), leveraged buyout attempts (2 firms), proxy contests (1 firm), episodes of illegal insider trading (5

firms), and asset sales (39 firms). Thus, almost two-thirds of the firms in the sample discontinued the use of or divested certain assets in the three years prior to the decision to liquidate. Moreover, in 90% of these cases, the proceeds from asset sales were used to repay debt, rather than to expand the scale of the firm. [5]

Additionally, there are 46 incidents of an attempt to transfer control of the firm either by friendly or hostile means. These 46 control events (which include friendly merger attempts, proxy contests, leveraged buyouts, solicitation of a buyer for the firm, and hostile takeover attempts) encompass 23 different firms. Interestingly, more than half of these control events were friendly acquisition attempts and most were solicited by the liquidating firm. These findings suggest that the decision to voluntarily liquidate was more often proposed in the absence of any overt pressure from hostile suitors and was adopted after the board had pursued other alternatives for transferring control of the firm's assets — a finding that contrasts with the interpretation of events by Ghosh et al. (1991) who, as we noted, interpret similar findings to indicate that "...voluntary liquidation is a means to frustrate unfriendly suitors".

4.2. *Ownership, governance, and operating data*

Data on the composition of the board and equity ownership were gathered directly from corporate proxy statements for the three fiscal years prior to the year of the liquidation decision. Data collected include the number of shares held by members of the board, the number of shares held by the corporation's founding family, whether the corporate founder or a member of the founding family continued to play an active role in the management of the firm or as a member of the board, and whether each member of the board was also a member of corporate management or had some other affiliation with the firm, but was not a full-time employee. 'Affiliated' members include investment bankers who provided services to the firm, commercial bankers who have made loans to the firm, lawyers providing legal counsel to the firm, and accountants who have audited the firm. We categorize board members as 'insiders' if they are current or retired corporate officers or members of the founding family. All others are classified as 'outsiders'.

Data on operating performance, assets, liabilities, and the number of shares outstanding were collected from the Compustat research file. We also recorded the 'age' of the firm as the number of years between incorporation and the year of the liquidation decision.

Finally, to construct a control sample, Compustat was accessed to identify all firms with the same 4-digit SIC code as any of the firms in the liquidation sample. To enter the control sample, we require that the firm have market value of equity

[5] Lang et al. (1995) report that the average stock price reaction to asset sales is positive only when the proceeds are paid out.

within ±30% of the market value of equity of the liquidating firm and that the same financial and ownership data collected for the liquidation sample be available for the control firm. The net result is a control sample composed of 122 firms with at least one matching firm for every firm in the sample of liquidating firms.

5. Statistical analysis

5.1. Univariate statistical tests

Summary statistics for the two samples for the year prior to the liquidation decision are contained in Table 3. We also calculated these statistics for the second year and third year prior to the liquidation decision. Although we do not show these data here, we do comment on them and these statistics are available upon request. One reason we do not show the statistics here is that they exhibit relatively little year-to-year variation over the three years preceding the liquidation.

At the year-end prior to the liquidation decision, the mean (median) market value of equity for the liquidating firms is $77.49 million ($19.54 million) and it is $82.79 million ($21.09 million) for the control sample. On most of the financial characteristics considered, there is remarkably little difference in any year between the liquidation sample and the control sample. [6] For example, in year −1, the average (median) return on assets of the two samples are 0.11 (0.09) and 0.11 (0.10). Thus, it does not appear that liquidating firms are any more or less profitable than their nonliquidating industry counterparts. The one financial dimension on which the two samples differ is our proxy for Tobin's Q. For each of the three year-ends prior to the liquidation decision, the average of this ratio is 0.87, 0.82, 0.80 for the liquidation sample and it is 1.30, 1.32, 1.49 for the control sample. The differences between these averages are all statistically significant with p-values less than 0.01.

When the samples are compared according to the composition of their boards of directors and their equity ownership, the differences are striking. Regardless of the year considered, the average (median) percentage equity ownership by the board and the fraction of the board comprised of corporate insiders is significantly greater in the liquidation sample than in the control sample. For example, at the fiscal year-end preceding the liquidation announcement, mean (median) board equity ownership is 32.9% (27.0%) for firms that voluntarily choose to liquidate

[6] The sizes of the firms along with the fact that all were publicly-traded indicates that the companies are well-established enterprises. Further proof of that observation is the average age of the firms. On average, the liquidation announcement follows the date of incorporation by 23 years. Thus, the firms in the sample are not just 'trendy' fads that elect to go out of business after a brief moment in the sun.

Table 3
Characteristics of 61 publicly traded firms that liquidated voluntarily on a piecemeal basis over the period 1970–1991 and their size-matched industry counterparts one year prior to the initial liquidation announcement

Variable (year −1)	Voluntary liquidations		Industry counterparts		Test statistic for difference in means[a]
	mean	median	mean	median	
Total debt + MV equity ($ millions)	199.47	39.42	142.32	49.85	0.70
Assets ($ millions)	402.43	49.45	272.21	36.59	0.67
Total debt ($ millions)	121.98	12.25	59.53	13.11	0.96
EBIDT/assets	0.11	0.09	0.11	0.10	−0.39
Tobin's Q	0.87	0.73	1.30	1.01	−2.87***
Total debt/assets	0.31	0.25	0.36	0.33	−0.96
LT debt/assets	0.23	0.15	0.24	0.17	−0.47
Total debt/(total debt + MV equity)	0.40	0.39	0.39	0.35	0.29
LT debt/(LT debt + MV equity)	0.33	0.29	0.32	0.26	0.15
(EBIDT − interest payments)/EBIDT	0.71	0.75	0.56	0.81	0.88
(Cash + MS)/assets	0.18	0.08	0.12	0.07	1.56
Asset sales (% of sample)	27.87	N.A.	4.10	N.A.	3.95***
Control event (% of sample)	22.95	N.A.	4.10	N.A.	3.32***
Price/EBIDT	7.12	3.71	6.84	4.91	0.18
Board stock ownership (%)	32.91	27.00	16.86	12.68	4.50***
Size of board	7.75	7.00	8.14	7.10	−0.62
Inside board members (%)	48.62	50.00	38.24	38.00	2.96***
Affiliated board members (%)	16.40	17.00	13.06	13.00	1.31
Outside board members (%)	34.98	33.00	48.46	50.00	−4.21***
Founder present (% of sample)	69.56	N.A.	31.82	N.A.	5.79***
Founding family present (% of sample)	75.41	N.A.	36.07	N.A.	5.57***
Founding family stock ownership (%)	27.52	22.98	21.58	16.42	1.47
Age of firm	23.67	18.50	23.06	16.04	0.21
Outside blockholder (% of sample)	32.79	N.A.	30.33	N.A.	−0.41

MV Equity: stock price at fiscal year-end times the number of shares outstanding; EBIDT: earnings before interest, depreciation and taxes; Total Debt: book value of short-term debt + long-term debt for fiscal year-end; MS: marketable securities; Price: price of common stock at fiscal year-end; Tobin's Q: (market value of equity + book value of debt)/book value of assets; Board stock ownership: percent of shares owned by board members; Founding family stock ownership: percent of shares owned by founding family board members; Age of firm: years from incorporation to liquidation announcement.
[a] t-statistic tests whether the mean of the liquidation sample is different from the mean of the matching sample. Similar results are obtained using a Wilcoxon rank sum test.
*** Statistically significant at the 1% level.
** Statistically significant at the 5% level.
* Statistically significant at the 10% level.

versus 16.9% (12.7%) for their nonliquidating industry counterparts. Similarly, for the sample of liquidating firms, corporate officers, on average, comprise 48.6% (50.0%) of the board versus 38.2% (38.0%) for the control sample. These ratios

are statistically significantly different from each other with p-values less than 0.01.

Additionally, firms that choose to liquidate voluntarily have a significantly greater incidence of either the founder or a member of the founding family as a top corporate officer and/or a member of the board than do their industry peers, but the fraction of shares owned by the founding family is not significantly greater in the liquidation sample than in the control sample. The founder or a member of the founding family is present in 75.4% of the liquidation sample and in 36.1% of the control sample (p-value for difference < 0.01). Given the significant presence of the founding family, it could be that the liquidation decision is really a retirement decision. That is, it could be that, after a long and successful career, the founder has decided to retire and, in the absence of an obvious successor, the decision is made to liquidate the firm. To consider that possibility, we gathered data on the age of the founder in the 41 firms (67% of the sample) in which he/she held the position of chairman of the board, CEO, or president. The mean (median) age of this group is 60 (58) years. For the control sample, the founder held one of the top officer positions in 36% of the sample and the mean (median) age was 56 (56). The mean and median ages of the founders of the two groups are not significantly different from each other at the 0.10 level. We also gathered data on the ages of the CEO, chairman, and president of those firms in which the founder was not in an executive position. For the liquidation sample, the average ages of these three officers were 53, 53 and 54, respectively. For the control sample, the average ages were 51, 51 and 55. For none of the three sets of officers is the average age of the liquidation sample significantly different from the control sample. Additionally, a search of proxy statements and other background material did not reveal any cases in which retirement was cited as a motive for the decision to liquidate. Thus, these data do not appear to support the 'retirement story' of voluntary piecemeal liquidation.

Several other factors deserve mention because of their apparent absence as influential determinants of the decision to liquidate voluntarily. The first is debt. When leverage is measured by any one of four different ratios, the use of debt is not significantly different between the two samples for any of the three years prior to the decision to liquidate. The second is free cash flow. The difference between the two samples is not significant when free cash flow is measured as either (EBIDT-interest payments)/EBIDT or (cash + marketable securities)/assets. These statistics suggest that it is not leverage or the attendant requirement that cash flow be paid out to creditors that 'forces' firms to liquidate. This result appears to contradict the argument of Jensen (1986) regarding free cash flow and the role of debt in motivating managers to opt for difficult value enhancing choices. It could be, however, as proposed by McConnell and Servaes (1995), that equity ownership works in combination with debt and in the cases considered here, equity ownership is the more powerful determining factor. The third factor is outside blockholders. We define an outside blockholder as an institution, group, or

individual who has no business or family ties to the firm or its inside or affiliated board members and who holds at least 5% of the firm's common stock. As shown in Table 3, outside blockholders are present in 32.8% of the liquidating firms and 30.3% of the control firms. These numbers are not significantly different from each other at the 0.10 level. There are, however, four cases in which an outside blockholder actively encouraged the firm to liquidate, but these are, to some extent, offset by two cases in which a blockholder actively sought (by means of a proxy fight) to prevent liquidation of the firm. [7] Fourth, the average ages of the firms in the two samples are nearly identical at about 23 years.

Finally, the tables indicate a significantly greater frequency of asset sales and control events during years immediately prior to the liquidation decision for the liquidation sample than for their industry peer group. These data suggest that the decision to liquidate the firm is the culmination of a multistage attempt to reallocate corporate assets to (presumably) higher valued uses.

As we noted earlier, results similar to ours have been reported for samples taken from earlier time periods. For example, Ghosh et al. report that relative to an industry-matched control group, liquidating firms were characterized by significantly higher inside ownership of stock and higher frequency of hostile takeover attempts, but no difference in leverage. They also report that liquidity is higher prior to liquidation decision. A result that we fail to confirm.

5.2. *Multivariate statistical tests*

We now estimate logistic regressions in which the dependent variable is one or zero depending on whether the firm is a member of the liquidating sample (1) or the industry peer sample (0) to determine which financial and organizational factors show up as significant determinants of the decision to liquidate on a multivariate basis. [8] A number of specifications of the regression are estimated with different sets of independent variables.

The first regression is reported in the second column of Table 4. The independent variables include current profitability (measured as EBIDT/total assets, hereafter ROA), Tobin's Q (measured as (market value of equity + book value of debt)/total assets)), total leverage (measured as total debt/total assets), free cash flow (measured as (EBIDT-interest payments)/EBIDT)), the fraction of shares owned by members of the board, an indicator variable equal to 1 when more than 50% of the board are corporate insiders, an indicator variable equal to 1 when a member of the founding family serves on the board of directors and/or holds a

[7] The four firms in which the blockholder encouraged liquidation are Amerifin Corp., Gemtec Corp., Hines (Edward) Lumber Co., and U.S. Realty Investments. The two firms in which the blockholder attempted to prevent the liquidation are City Investing and Gulf Broadcast Co.

[8] The results reported here use the choice based estimation procedure which weights the log-likelihood function by the true proportions of liquidating and nonliquidating firms in the population, as described in Palepu (1986).

Table 4
Estimated coefficients from logistic regressions for 61 publicly traded firms that liquidated voluntarily on a piecemeal basis over the period 1970–1991 and their size-matched industry counterparts. The dependent variable in the regression is 1 for a voluntarily liquidating firm and 0 for a nonliquidating firm. (*t*-statistics are in parentheses)

Independent variable	(1)	(2)
Intercept	−2.77	−3.31
	−(1.24)	−(1.37)
Current profitability	−2.57	−3.13
	−(0.75)	−(0.92)
Tobin's *Q*	−0.89	−0.90
	−(1.85)*	−(1.96)*
Leverage	−0.42	−0.50
	−(0.31)	−(0.38)
Free cash flow	0.001	0.001
	(1.26)	(1.04)
Board stock ownership	3.23	
	(2.50)**	
Inside board stock ownership		2.73
		(1.66)*
Outside board stock ownership		8.45
		(2.31)**
Affiliated board stock ownership		−0.63
		−(0.07)
Inside board indicator	0.70	1.04
	(1.13)	(1.59)
Founding family indicator	1.53	1.84
	(2.01)**	(2.40)**
Blockholder indicator	0.18	0.17
	(0.29)	(0.26)
Age of chairman	−0.02	−0.01
	−(0.42)	−(0.26)
Age of CEO	0.04	0.04
	(0.29)	(0.31)
Age of president	−0.001	−0.001
	−(0.01)	−(0.01)
Age of firm	0.002	0.003
	(0.17)	(0.26)
Prior asset sales indicator	2.75	2.87
	(2.77)**	(2.82)**
Prior control event indicator	2.28	2.38
	(3.22)***	(3.43)***
Pseudo-R^2	0.38	0.39

*** Statistically significant at the 1% level.
** Statistically significant at the 5% level.
* Statistically significant at the 10% level.

top management position, an indicator variable equal to 1 when an outside blockholder is present, the age of the firm, an indicator variable equal to 1 when the firm experienced prior asset sales, an indicator variable equal to 1 when the firm experienced a control event during the three prior years, and the ages of the chairman, the president and the CEO. The statistically significant variables are Tobin's Q, the fraction of shares owned by members of the board, the presence of a member of the founding family on the board and/or in top management, and the indicator variables for prior asset sales and prior control events (all with p-values < 0.10).

To determine the sensitivity of the regression results to the specification of the model, we experimented with different sets of the independent variables and alternative measures of current profitability, leverage, and free cash flow. Regardless of the specification of the regression or the definitions of these variables, in no regression did any of them show up as statistically significant. We also experimented with various classifications of the board as being either insider or outsider dominated. In no case did the composition of the board show up as being statistically significant. Similarly, in no regression was the age of the firm, the ages of the top officers or the presence of an outside blockholder statistically significant. In contrast, regardless of the other variables included and the way in which the other variables are specified, Tobin's Q, fraction of the shares owned by the board, and presence of the founding family always show up as statistically significant as do the indicator variables for prior asset sales and prior control events.

The multivariate results indicate that after controlling for various operating and financial characteristics, firms that voluntarily choose to liquidate are characterized by significantly higher equity ownership by the board, significantly lower future growth opportunities (as proxied by Tobin's Q), and significantly higher presence of the firm's founding family than otherwise comparable nonliquidating firms. These results are consistent with managerial theories of the firm which predict that managers are more likely to act in shareholders' interests the higher the managers' equity ownership in the firm.

To explore further the role of equity ownership by the board, the fraction of shares owned by insiders, outsiders, and affiliated board members are entered separately into the regression. This regression is presented in the third column of Table 4. Both inside and outside share ownership are significantly higher in the liquidating sample than in the nonliquidating sample. This result indicates that it is not board composition, per se, but rather how much equity is owned by the board that plays a key role in the decision to voluntarily liquidate the firm.

The significance of the founding family's presence in firms that voluntarily liquidate, even after controlling for equity ownership, board composition, profitability, leverage, and so on, is consistent with the conjecture by Morck et al. (1988b) and Denis and Denis (1995) that certain individuals can have a disproportionate influence on the decision making process of the firm.

Thus, a story that is consistent with the data appears to be that it is low future growth opportunities that (appropriately) motivates management to voluntarily liquidate the firm, but the lack of future profitable investment opportunities is not a sufficient condition. It is also necessary that management have a significant equity position in the firm and/or that the founding family plays a major role in the decision making process. Finally, the high incidence of prior efforts to transfer control of the firm by other means and/or to restructure the firm, suggests that it is only after a significant search for a less 'final' solution that management, perhaps reluctantly, arrives at the decision to liquidate the firm. This story is also consistent with the individual case narratives in Appendix A.

6. Event study

6.1. Announcement period excess returns

We now investigate the wealth effects associated with our sample of piecemeal liquidations. In doing so, we examine common stock excess returns around three dates: (1) the date on which the firm first publicly announces its intention to liquidate; (2) the date on which the board of directors approves the plan of liquidation; and (3) the date on which the shareholders vote to approve the plan. We then conduct cross-sectional regressions in which the sum of excess returns around the three dates is the dependent variable.

Our analysis extends and complements earlier stock price studies in several ways. For example, Kim and Schatzberg (1987) include both piecemeal liquidations and whole firm acquisitions disguised as voluntary liquidations in their analysis and consider only the initial announcement and shareholder approval dates in their analysis. Hite et al., Skantz and Marchesini, and Kudla examine piecemeal liquidations, but consider only the initial announcement period excess returns. These differences in analyses between the earlier studies and ours turn out to be consequential.

To conduct the event study, stock returns are taken from the CRSP tape for NYSE, AMEX and NASDAQ firms. Sufficient stock returns data are available to conduct the event study for 55 firms. [9] The market model procedure as described in Kim and Schatzberg (1987) is used to estimate excess returns.

Table 5 presents two-day announcement period average excess returns around the initial announcement date, the board approval date, and the shareholder

[9] Two of the NASDAQ-listed stocks were delisted (i.e., closed their stock transfer books) prior to the initial announcement date; one of the NASDAQ firms was delisted after the initial announcement date, but stock price data are not available on the event dates; and stock price data are not available on CRSP for three of the firms on other exchanges.

Table 5
Average two-day announcement period excess returns for three dates: (1) the initial announcement date; (2) the board approval date; and (3) the shareholder approval date for 55 firms that voluntarily liquidated over the period 1970–1991[a]

Date	All firms	Firms with prior control event[b]	Firms without prior control event[b]	*t*-statistic for difference in means[c]
Initial announcement	13.71%*** (55;84%)	8.70%*** (23;83%)	17.50%*** (32;84%)	1.68*
Board approval	5.27%*** (34;70%)	9.10%*** (15;73%)	2.03%*** (19;67%)	2.20**
Shareholder approval	0.86%** (53;54%)	1.60%*** (23;70%)	0.25% (30;39%)	1.96*

[a]Sample size and % positive appear in parentheses.
[b]Control event occurs during the three years prior to the initial liquidation announcement. Control events include solicitation of buyers for the firm, friendly merger attempts, and hostile takeover attempts.
[c]Results from tests of differences in two-day average excess returns between firms with and without prior control events.
*** Statistically significant at the 1% level.
** Statistically significant at the 5% level.
* Statistically significant at the 10% level.

approval date. Each is positive and statistically significant (p-values < 0.05). These results indicate that the initial decision to liquidate the firm is good news for shareholders and that additional uncertainty is resolved about the decision at each approval date along the way. The sum of the excess returns over the three announcement dates is +19.8%. Given that the initial announcement date and the board approval date coincide for 21 firms, it is perhaps not surprising that the bulk of the wealth effect, 13.7%, occurs on the initial announcement date.

As suggested by Hite et al., because of prior control events, the liquidation decision may have been partially anticipated in those firms with such pre-liquidation activity. If so, as reported by Hite et al., the announcement period excess returns for these firms should be lower than for those firms with no prior control event. To investigate that issue, we split the sample into those with and without prior control events. Announcement period returns for the two samples are shown in the third and fourth columns of Table 5. Consistent with the idea that the liquidation announcement is less anticipated in the sample without prior control events, the excess return of +17.5% on the initial announcement date for this sample is more than twice the +8.7% for the sample with a prior control event. Note, however, that the relative sizes of the excess returns for the two samples is reversed on the board approval date — it is +9.10% for the sample with a prior

control event and it is +2.03% for the sample with no prior control event. Additionally, examination of excess returns on the shareholder approval date indicates that the significant excess return on this date for the full sample is due entirely to the set with prior control events. When excess returns around the three dates are summed, the totals are nearly identical for the two samples — +19.4% and +19.8%.

Our results give rise to an alternative interpretation (than the one offered by Hite et al.) of the market's differential reaction to the initial announcements for the two samples. It goes as follows: Because prior attempts to transfer control of the firms in the sample with prior control events failed, the market gives less credibility to the initial announcement of an attempt to liquidate the firm for this sample than for the sample with no prior control event. As the market becomes less skeptical of the likelihood of a successful liquidation of the firm, the market attributes an equal valuation effect to that decision, regardless of prior attempts to transfer control of the firm by other means. On net then, these results reverse the conclusion of Hite et al. that the valuation effects of liquidation for firms with and without prior control events are significantly different from each other. The positive valuation consequences of the liquidation of the firm appear to be independent of prior takeover attempts.

6.2. Cross-sectional analysis

We now investigate the relation between the valuation effects and various financial, operating, and ownership characteristics of the sample by performing cross-sectional regressions. Care must be taken when interpreting the results of these regressions, however, because, at least in some cases, the event in question is likely to have been, at least partially, anticipated because of prior events in the life of the firm. To control for this effect, two indicator variables are included in each regression, one for a prior asset sale and one for a prior control event. The inclusion of the indicator for the prior control event allows us to test in a multivariate context, the conclusion by Hite et al. that excess returns differ between firms with and without prior control events.

Because we are interested in the total wealth effect associated with the decision to liquidate the firm, we use the sum of the two-day excess returns around the three events as the dependent variable in the regressions. In the first regression, the independent variables include ROA, Tobin's Q, total leverage, free cash flow, the fraction of shares owned by members of the board, an indicator variable equal to 1 when more than 50% of the board is comprised of corporate insiders, an indicator variable equal to 1 when a member of the founding family serves on the board of directors and/or in a key executive position, an indicator variable equal to 1 when an outside blockholder is present, an indicator variable equal to 1 when the firm experienced prior asset sales, and an indicator variable equal to 1 when the firm experienced a prior control event.

Table 6
Estimated coefficients from weighted least square regressions in which the dependent variable is the sum of two-day announcement period excess returns for 55 publicly traded firms that liquidated voluntarily on a piecemeal basis over the period 1970–1991. The two-day excess returns around three dates are summed. The three dates are: (1) the initial announcement date; (2) the board approval date; (3) the shareholder approval date. (*t*-statistics are in parentheses)

Independent variable	(1)	(2)
Intercept	0.13	0.10
	(1.02)	(0.75)
Current profitability	−1.03	
	−(3.73)***	
Tobin's Q	−0.01	−0.09
	−(0.09)	−(1.83)*
Leverage	−0.19	−0.24
	−(1.34)	−(1.56)
Free cash flow	0.0001	0.0001
	(0.72)	(0.40)
Board stock ownership	0.29	0.26
	(1.94)**	(1.73)*
Inside board indicator	0.05	0.05
	(0.87)	(0.84)
Founding family indicator	0.03	0.01
	(0.51)	(0.08)
Blockholder indicator	0.06	0.05
	(0.91)	(0.68)
Prior asset sales indicator	−0.09	−0.07
	−(1.63)*	−(1.25)
Prior control event indicator	−0.04	−0.07
	−(0.79)	−(1.20)
R^2	0.28	0.18

*** Statistically significant at the 1% level.
** Statistically significant at the 5% level.
* Statistically significant at the 10% level.

The results of the regression are presented in the second column of Table 6. Excess returns are negatively correlated with current profitability (p-value < 0.05), positively correlated with the fraction of shares owned by members of the board (p-value < 0.05), and negatively correlated with the presence of prior asset sales (p-value < 0.05). None of the other variables have p-values less than 0.10. As an experiment to determine whether it is only current, as opposed to future, profitability that matters, current profitability is omitted from the regression and the regression is reestimated with all other variables retained in the regression. The results, presented in the third column of Table 6, show that Q now enters the regression positively and significantly at the 0.10 level. The regression is then reestimated with alternative measures of leverage and free cash flow and other combinations of variables. In no case is the p-value of any of these variables less than 0.10. Importantly, in no case does the indicator variable for prior control

events enter with a p-value less 0.10. The results indicate that market participants expect greater value to be created in the liquidation process by firms that have been performing relatively poorly on a current operating basis or have relatively poor prospects for the future (as measured by the ratio of market to book value of equity) and in which board members have a relatively large ownership stake in the firm. One interpretation of the results is that, given the decision to liquidate, market participants expect management to create greater value the greater is their ownership stake in the firm.

7. The discounted value of liquidating dividends

The decision to liquidate the firm is a capital (dis)investment decision such that voluntary corporate liquidations provide an opportunity to study whether standard capital budgeting techniques indicate that liquidation decisions are positive NPV projects given ex post cash flows. The traditional Sharpe–Lintner capital asset pricing model (CAPM) is used to estimate a risk-adjusted discount rate. That rate is then used to discount the actual dividends paid. The liquidating dividends are compiled from the Prentice-Hall *Capital Adjustment Reporter* and the Commerce Clearing House *Capital Changes Reporter*. To implement the CAPM, the yield on the 90-day treasury bill at the time of the initial liquidation announcement is used as the risk-free rate, the arithmetic average of the difference between the S&P 500 and the return on short-term treasury securities, as calculated by Ibbotson and Sinquefield, is used as the market risk premium, and betas are calculated as in Kim and Schatzberg (1987).

As shown in Table 7, the average stock price of the liquidating firms five days prior to the initial announcement is $20.16 and the discounted value of the actual dividends paid is $23.50. As a percentage of the pre-announcement stock price,

Table 7
Results of analysis of liquidating dividends paid out by 55 firms that liquidated voluntarily on a piecemeal basis over the period 1970–1991

	Mean	Median	Minimum	Maximum
Total dividends paid	$ 29.92	$ 20.86	$ 2.20	$ 101.50
Discounted value of dividends[a]	$ 23.50	$ 15.38	$ 1.89	$ 87.67
Pre-liquidation announcement price[b]	$ 20.16	$ 13.00	$ 2.06	$ 75.25
Post-liquidation announcement price[c]	$ 22.71	$ 14.56	$ 2.53	$ 86.63
Liquidation period (in years)[d]	3.48	3.21	0.08	9.25

[a]Discounted value of dividends is determined by discounting dividends paid with a risk-adjusted discount rate estimated with the traditional Sharp-Lintner CAPM.
[b]Measured five days before the initial liquidation announcement.
[c]Measured five days after the initial liquidation announcement.
[d]Defined as the period from shareholder confirmation of the liquidation decision through the date of the final liquidating dividend.

the difference between the two is +16.56%. That is, if the CAPM were the precise way in which market participants determined the value of future cash flows and if the actual cash flows are an unbiased reflection of market participants' expected cash flows, the announcement period average excess return would be +16.56%. This compares with the average initial announcement period excess return of +13.71% and the sum of the three announcement period returns of +19.84%. The average percentage NPV of the project is not significantly different from either the average initial announcement period return or the sum of the three announcement period average excess returns. For a sample of 37 firms that liquidate over the period 1970 through 1984, Skantz and Marchesini (1992) report a similar result. The similarity between the announcement period excess returns and the percentage NPV of the project provides at least some comfort for the straightforward application of the CAPM in capital budgeting analysis.

8. Taxes and the decision to liquidate

Under current tax law, when a corporation sells any of its assets, the corporation recognizes and is taxed on any gain realized upon the sale. The shareholders, in turn, are taxed on the amount by which the cash distributed to them exceeds the value of the adjusted basis for their common stock in the liquidating firm. However, prior to the Tax Reform Act of 1986, if the firm's assets were completely liquidated, gains on the sale of the assets were not taxed at the corporate level. Rather, the cash payouts to shareholders from the liquidation were taxed only at the personal level at which point they were treated as ordinary dividends and taxed accordingly. The only limitation was that the liquidation must be completed within one year following the decision to liquidate. However, that limitation was easily circumvented by simply transferring ownership of all non-liquidated assets to a liquidating trust within 12 months of the decision to liquidate. As a consequence, some transactions in which the entire firm was acquired were structured as voluntary liquidations rather than asset sales or acquisitions so as to capture the tax advantage of a voluntary liquidation relative to that of a merger or whole firm acquisition.

The Tax Reform Act of 1986 clearly removed the preferential tax treatment given to corporate liquidations, thereby eliminating the tax incentive to disguise acquisitions and asset sales as voluntary liquidations. Furthermore, the 1986 Act reduced the after-tax value of a voluntary piecemeal liquidation relative to the after-tax value that it would have had prior to the Act. However, for value maximizing firms, the Act has not changed the criterion for liquidation: If the 'bust-up' value of the firm exceeds its going concern value (or acquisition value), the firm should be liquidated. Consistent with that notion, announcements of voluntary piecemeal liquidations decline, but still occur after 1986. As we noted, we identified three in 1988, five in 1989, four in 1990 and four in 1991. Given our

requirement that the liquidation be complete by year-end 1991 to enter our sample, these firms do not show up in our analysis. Nevertheless, voluntary piecemeal liquidations continue to be a mechanism for transferring control of resources to higher value uses.

9. Summary and conclusions

This paper presents the results of an analysis of a nearly comprehensive sample of publicly traded firms that initiated and completed voluntary liquidations over the period 1970 through 1991. We examine events leading up to the decision to liquidate, the ownership and governance structure of these firms, their financial characteristics, and their operating and financial performance prior to and at the time of their decisions to liquidate voluntarily. We also conduct an event study around three dates: (1) the date of initial announcement; (2) the date of approval of the plan of liquidation by the board of directors; and (3) the date of shareholder approval of the plan.

The results of the analyses indicate that, in comparison with a size-matched sample of their industry peers, firms that choose to liquidate voluntarily are characterized by low Tobin's Q, high percentage ownership of shares by management and members of the board of directors and a high incidence of the presence of the founding family on the board of directors and/or in a key management position, a high incidence of prior attempts to transfer control of the firm by other means, and a high incidence of prior asset sales. Contrarily, on the basis of current rate of return on assets, use of debt financing, free cash flow, composition of the board according to inside and outside directors, age of the firm, ages of the top corporate officers, and presence of an outside blockholder, these firms are not distinguishable from their industry peer group. The analysis of stock returns indicates that voluntary liquidations are, on average, associated with an increase in stock price of $+20\%$.

One interpretation of the results is that it is not low current profitability or 'over-reliance' on debt financing that impels these firms to voluntarily undertake the value increasing decision to discontinue operating as a going concern. Rather, it is the absence of future growth opportunities, as evidenced by a low market-to-book ratio, that pushes the firm toward this decision. Furthermore, while the condition of low future growth opportunities is necessary, it is not sufficient. A further requirement is that the board of directors have a large stake in the firm's equity and/or that the founding family continues to play an important role in the decision making process of the firm. We interpret this latter result to be broadly consistent with managerial theories of the firm that argue that managers are more likely to act in shareholders interests when managers share in the equity ownership of the firm. Our cross-sectional regressions of stock returns indicate that market participants respond more favorably (i.e., the announcement period stock price

reaction is higher) the poorer has been recent performance and the higher is the fraction of stock owned by the managers and the board of directors. Once shareholders have approved the decision to liquidate voluntarily, the board has significant discretion over the means by which assets are sold and the proceeds distributed. Thus, one interpretation of the positive correlation between the stock price reaction and board ownership is that market participants expect managers and the board to more efficiently dispose of assets, the more closely their interests are aligned with shareholders. This result, too, is then consistent with managerial theories of the firm.

Finally, as an experiment, we discount the liquidating cash flows (i.e., dividends) paid by the firm with a CAPM-determined risk-adjusted discount rate. We then compare the discounted value of these cash flows with the firm's pre-announcement stock price. The average percentage NPV of the (dis)investment decision is roughly the same as the average announcement returns. This result provides, at least some, reassurance for the practice of using discounted cash flows to evaluate capital budgeting alternatives.

Appendix A. Case histories of certain voluntary corporate liquidations

A.1. Barber Oil Corporation

Initial Announcement Date: 3/3/80; Total Assets (millions): $179.64; Tobin's *Q*: 0.56; Board Ownership: 11.2%; Founding Family on Board of Directors: No

After an unsuccessful attempt to voluntarily liquidate the firm in 1975, the board appointed a new management team. The intent of the new management was to expand the firm's operations in oil exploration, development, and distribution as well as to diversify into coal mining. However, the company experienced difficulty raising the required capital for this expansion and found itself as the target of a hostile takeover attempt by Hanson Industries in 1979. The board tried to block the takeover and solicited a friendly bid from Engelhard Minerals and Chemicals. Eventually, Hanson countered the Engelhard bid with a bid that could not be matched by Engelhard. Barber then attempted to negotiate a purchase agreement with Hanson but Hanson subsequently abandoned its takeover attempt. Early in 1980, after exploring the firm's alternatives, the board began a search for another potential buyer for the firm as a going concern. By year-end, after this search proved unsuccessful, the board adopted a plan of complete liquidation and dissolution of the firm.

A.2. City Investing

Initial Announcement Date: 8/23/84; Total Assets (millions): $8.361.0; Tobin's *Q*: 0.39; Board Ownership: 1.5%; Founding Family on Board of Directors: Yes

In 1980, after intense self-examination during a takeover battle with Tamco Industries, the board reviewed the range of values which might be realized for the assets of the firm if sold in an orderly and piecemeal fashion. Subsequently, the board adopted a partial divestiture program in which $800 million in assets were sold with intention of reducing its heavy debt burden of $1.5 billion. However, upon completion of the proposed asset sales, the firm still found itself in a vulnerable position and adopted a golden parachute plan for its officers. In May of 1984, the firm received two offers to acquire all the company's common stock. The first was made by an investor group led by Merrill Lynch (ML) for $50/share or $2.3 billion. The second offer, from corporate raider Victor Posner, proposed to acquire the firm for $52.50/share. However, the ML offer was revised and replaced by an offer from an investor group led by Kohlberg, Kravis, and Roberts (KKR) and ML to purchase three divisions for $1.25 billion. Upon careful consideration, the board accepted the KKR/ML offer. Posner subsequently countered with a $1.3 billion offer for the assets and filed suit against the proposed sale to KKR/ML.

In addition, Tamco Industries, a substantial shareholder from its previous takeover attempt, offered to buy two of City's remaining divisions for $560 million. In turn, Tamco's offer was countered at $565 million by KKR/ML. In September, the board voted in favor of the KKR/ML offers, rejected the Posner and Tamco bids, and proposed the piecemeal liquidation of the firm's remaining assets. During the following month, Tamco filed a suit against the board's proposed liquidation plan, stating that it was too costly. Joined by Posner, Tamco waged a proxy contest in an attempt to block the shareholder meeting scheduled to vote on adoption of the liquidation plan. However, these efforts were unsuccessful and a majority of shareholders ratified the board's plan for liquidation of the firm.

A.3. Glasrock Medical Services

Initial Announcement Date: 10/21/82; Total Assets (millions): $68.69; Tobin's *Q*: 1.42; Board Ownership: 13.0%; Founding Family on Board of Directors: No

During the mid-1970s, the firm adopted a major restructuring plan that focused its health care operations primarily in the medical services area. The operations of the firm were streamlined and there was a change in the top management of the firm. Late in the following year, a hostile takeover attempt emerged. In the course of the battle, Glasrock's chairman obtained a large enough ownership position to block the offer. The SEC began an investigation into these share purchases by the chairman and subsequently filed suit against the chairman for breaking disclosure laws. To discourage other unwanted takeover attempts, the board instituted a share repurchase program and financed it with $16 million in debt during 1980 and 1981.

However, early the next year, Airco, Inc. expressed an interest in obtaining all or some of the firm's assets. The board was open to negotiations and agreed to sell

to Airco 14% of the firm's common shares for $20/share and elected two of Airco's officers as directors. Additionally, the board agreed to accept a tender offer in excess of $23/share. These negotiations continued for nearly a year, but eventually Airco determined that a tender offer for the firm as a going concern would not serve its shareholders' interests. Instead, Airco made an offer for 80% of the firm's operations. The board concluded that the offer was attractive, but that the remaining assets would not be profitable. Consequently, the board resolved that it would be in the best interests of Glasrock shareholders to sell certain assets of the firm to Airco and to sell its remaining subsidiaries to other buyers.

A.4. Handyman Corporation

Initial Announcement Date: 9/26/86; Total Assets (millions): $149.85; Tobin's *Q*: 0.59; Board Ownership: 58.7%; Founding Family on Board of Directors: Yes

Founded in 1962, Handyman consisted of subsidiaries engaged in the operation of 53 home improvement centers. In 1984, the board began a restructuring program that concentrated expansion efforts in its most profitable markets while closing and disposing of stores in less profitable markets. As a result, 21 stores were closed and sold by 1985. During the next two years, however, the home improvement industry experienced significant changes and increased competition which negatively affected the performance of Handyman's existing stores.

Despite increasing sales, profits from operations did not increase primarily because of the competitive pressure on prices and the substantial capital expenditures required to remodel and update the stores. During this period, the company also actively attempted to enlarge its market share and to achieve economies of scale by acquiring additional stores in its primary markets. This did not prove viable. After considering the adverse effects of increasing business competition, the relatively low return on its investments, and the value of its properties, the board determined that the liquidation of the firm's assets, in an orderly and piecemeal fashion, would result in distributions to shareholders in excess of what they would be able to realize in the foreseeable future by the sale of their common shares in the open market if the firm continued its operations.

A.5. Murray Mortgage Investors

Initial Announcement Date: 11/19/80; Total Assets (millions): $10.99; Tobin's *Q*: 0.75; Board Ownership: 11.4%; Founding Family on Board of Directors: Yes

Prior to its liquidation in 1981, Murray was organized as a business trust to invest in a diversified portfolio of real estate mortgage loans. However, due to unfavorable economic and financial conditions affecting the real estate industry, the trust did not institute any loans on new projects from September 1975 through June 1978 other than with respect to renewals, and increased or new loans relating to existing investments. The trust resumed its lending operations on a limited basis in July 1978 and these activities increased substantially during the next two years.

During 1980, in an attempt to make the trust a more profitable and attractive investment to its shareholders, the primary business goals of the trust were to increase its investment activity in first mortgage construction loans and to increase its capital base. The trust was able to increase its investment activity, but was unable to increase its capital base. Faced with its limited capital and the discount of the trust's market value relative to the book value of its assets, the board adopted a plan for the piecemeal sale of the firm's assets.

A.6. Overseas National Airways

Initial Announcement Date: 4/2/76; Total Assets (millions): $97.43; Tobin's *Q*: 0.80; Board Ownership: 5.1%, Founding Family on Board of Directors: No

As a supplemental air carrier, in a highly competitive industry, Overseas had suffered from increased operational costs and constraints from servicing its debt. As a result, the board initiated merger talks with another carrier in 1974. However, these negotiations did not prove to be fruitful. Throughout the following year, the firm's profits plunged and the firm defaulted on its debt obligation. Thus, when approached by Coca-Cola Bottling regarding the purchase of the firm, Overseas' board was receptive. However, after reviewing the net worth of the firm, the initial offer was reduced and eventually the buyout was canceled in May, 1976. The firm continued its dwindling operations and late in 1977 its chairman resigned. Due to substantial losses, the board sold two of the firm's DC-8 jet liners for $12 million, but did not believe that the firm's situation would improve in the foreseeable future. Since there did not seem to be any 'reasonable' interest in the carrier as a going concern, the board determined that the only remaining value-maximizing alternative for shareholders was voluntary liquidation of the firm.

A.7. RH Medical Services

Initial Announcement Date: 1/14/80; Total Assets (millions): $43.90; Tobin's *Q*: 0.95; Board Ownership: 60.4%; Founding Family on Board of Directors: Yes

Due to rising costs and competition in the health care industry, in 1977 the board planned to consolidate its operations into a health care group by merging with a large hospital. Eventually, these plans were canceled. However, in the course of these negotiations, the board assessed the negative impact that the rapid changes in the health care industry were having on the firm's operations. The board did not believe that this situation was likely to change and, furthermore, that the situation would continue to deteriorate. After reviewing the needed expansion and capital expenditures to earn an acceptable return for the shareholders, the board agreed that the complete piecemeal liquidation of the firm would be in the shareholder's best interests.

A.8. Unity Buying Service

Initial Announcement Date: 9/15/83; Total Assets (millions): $40.71; Tobin's *Q*: 0.50; Board Ownership: 69.4%; Founding Family on Board of Directors: Yes

Since its inception in 1971, the firm had principally been engaged in retail merchandising of a wide variety of products by direct response mail order activities. During the 1980s, the board adopted a major restructuring plan aimed at increasing working capital and reducing debt to help improve future earnings. However, these efforts did not substantially improve the financial situation of the firm. Furthermore, the company's operations had been adversely affected by inflationary increases in the cost of labor, merchandise, and services. The company had also experienced significant decreases in overall sales due to its increased merchandise costs during the past several years. Finally, the company's business had become highly competitive, of which many competitors had significantly greater financial resources available for expansion than was available to Unity. After reviewing these adverse developments and exploring its options, the board concluded that the situation was not likely to turn around in the foreseeable future. Accordingly, the board recommended that the firm be voluntarily liquidated.

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