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GOING PRIVATE: A FINANCIAL PROFILE

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Abstract

The number of public firms going private has increased sharply in recent years, as part of widespread corporate restructuring. There have been numerous studies concerned with the motive for mergers/acquisitions, but very few have addressed the motives for going private. The purpose of this study is to establish the financial characteristics of firms that have gone private. More specifically, the study is concerned with those variables that are indicators of the firms' risk-return tradeoff character and changes in cash flows. It is the real, or perceived changes in those groups of variables, by investors at the margin that result in changes in the market value of the firm. In addition, there is a proxy for size since it has never been established whether large or small firms are more likely to go private. A probit model was used to distinguish the difference between firms that went private and firms that did not. Major findings were: (1)the higher the price-earning multiple, the greater the market value to book value ratio and the higher the growth rate the less likely a firm will go private; (2)the greater the cash flow to total assets, and the higher the dividend yield, the greater the likelihood the firm will go private. Stated differently, if returns to owners are measured in potential cash such as market value, or growth the firm is more likely to stay public but if the greater returns are measured in cash or cash for dividend payouts, the more likely the firm will go private.

INTRODUCTION

In the world of high finance, the hottest play these days is the leveraged buyout. Corporate officers are turning publicly-held firms into private businesses free from demands of short term investors and corporate raiders. Though there are numerous studies that presented the possible motives for corporate mergers/acquisitions, only a few studies have evaluated the motives for going private. Going private activity has increased sharply in the US in recent years as part of a widespread Corporate restructuring.

This paper evaluates the recent form of corporate restructuring within the context of (1) the theory of the firm presented by Jensen and Meckling (1976) and Fama and Jensen (1983), (2) information asymmetry hypothesis of Myers and Majluf (1984) and (3) the agency costs hypothesis of Jensen and Meckling (1976) and Myers (1977). This study empirically examines whether firms which went private have different financial characteristics than firms which did not go private. A probit model is estimated, with data on firms for the years 1981 through 1992.

Section II contains a review of the relevant literature, and includes the variables used in this analysis as empirical proxies for the conceptual variables discussed. It ends with a summary of the hypotheses employed in this paper. Section III describes the model, and Section IV presents the empirical results of probit estimation. Finally, Section V presents a brief summary and conclusion.

LITERATURE REVIEW

Jensen (1986) suggests that potential candidates for going private are firms where agency costs of free cash flows are likely to be high, that is, firms with low growth prospects and large free cash flows. Furthermore, he states that managers

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of such firms may have an incentive to maximize their control and power over the firm by increasing the resources available to them. This is done by not increasing or even reducing cash payouts to shareholders even if future growth opportunities are expected to be scarce. The growth rate of sales (GROWTH) is used as a proxy variable for low growth prospects. The change in the ratio of cash flows to total assets (CFLTA) is used as a proxy for the presence of large free cash flows, similar to Lehn and Poulsen's (1989) measure of current undistributed free cash flows. To capture a manager's inclination to reduce the cash payout, the proxy variable, change in dividend payout ratio is employed (DVOP).

It is suggested that managers and outside stockholders have conflicting goals regarding the optimal dividend policy. On the one hand, the company is under pressure to report high profits and dividends to outside shareholders. On the other hand, the high tax bracket management stockholders have more interest in long-term capital gains. Taking the firm private is seen as a means to resolve the conflict. Outside share holders receive substantially above market for their shares and managers who remained with the firm as private investors could manage the company in their own best interests. It is hypothesized that the going private firm has a stable and above industry average dividend yield (DIVYIELD). This is true in theory because high dividend yields are generally associated with levels of retained earnings in the form of cash that will support those dividends. to the extent that managers desire to control cash rather than make their decisions subject to public scrutiny they are more likely to go private.

Kim and Sorensen (1986) suggest that the agency cost of debt is more significant for those firms whose managers own a small portion of equity than for those firms whose managers own a significant portion of equity because the former group is more likely to make suboptimal investment decisions than the latter group. It is hypothesized that going private firms have lower financial leverage than those that do not go private. Debt ratio (DEBT) is used as a proxy variable for the agency cost of debt.

Asymmetric information theories suggest that information available to the public investors is different from that available to the insiders. Information asymmetry regarding productivity and profitability of the firm might result in managers taking the firm private for reasons of power, glory and especially riches. Shah and Thakor (1988) suggest that when the manager has superior information about the return distribution of the firm's assets, public sale of equity will be preferred when the firm's idiosyncratic risk is high and the founding owner is sufficiently risk averse. When the firm's idiosyncratic risk is low, as in the case of the firm with free cash flows, the preference for public incorporation declines. Change in equity financing is proxied by the difference in the ratio of equity to total assets (EQUIFI).

Myers and Majluf (1984) suggest that managers repurchase common stock when the firm is undervalued by the market. Since a going private transaction is equivalent to 100% stock repurchase, it is hypothesized that going private firms tend to be undervalued relative to those that do not go private. Proxy variables for the undervaluation hypothesis are a low P/E ratio (PE), a low price to book value ratio (PRICEBV), a low price to sales ratio (PRICESA), and the ratio of the sum of market value of equity and book value of debt, to the book value of total assets (MVEQ); this variable is an approximation of Tobin's q-ratio.

Most companies that have been taken private are small in size and size related transaction costs are likely to increase with firm size. Also, the degree of information asymmetry and therefore that of undervaluation, are likely to be associated with the size of the firm. The firm's total assets (TA) are used as a size proxy variable.

In light of the above theories, we investigate a number of different specific hypotheses and discuss their implications. Our first hypothesis concerns the agency cost of free cash flows and agency cost of debt. The next two hypotheses explore the impact of information asymmetry and undervaluation as well as size factors on going private firms. To summarize:

Hypothesis 1: The probability that a firm will go private is expected to be negatively related to: (a) its sales growth rate (GROWTH), (b) the change in dividend payout ratio (DVOP), and (c) the debt ratio (DEBT). It is expected to be positively related to the change in the cash flow to total assets ratio (CFLTA). It is also expected to be positively related to the dividend yield (DIVYIELD).

Hypothesis 2: The probability that a firm will go private should be negatively related to (a) the change in equity financing (EQUIFI), (b) the P/E ratio (PE), (c) the price to book value ratio (PRICEBV), (d) the price to sales ratio (PRICESA), and (e) Tobin's q-ratio approximation (MVEQ).

Hypothesis 3: The probability that a firm will go private should be negatively related to its size (TA).

THE MODEL

The Data

Our sample of going private firms is identified from the Wall Street Journal Index and *Research Compustat® Status Report* for the period 1981-1992. During this period, there were 299 companies that went private. All the proxy variables were computed over a period of five years immediately preceding the dates when firms went private. The initial sample is reduced after the following screening:

1. Companies had to have their shares quoted with monthly (quarterly) share price (dividend) data available in Compustat for the full observation period.
2. Companies had to have the data on proxy variables for the full observation period.

After screening, the number of going private companies (GP companies) was reduced to 118 companies. Then a random sample of 180 non-going private companies (NGP companies) was chosen from Compustat Company Coverage report. The data during period 1984-1988 were used to calculate proxy variables because during that time large number of companies went private. Some random NGP firms that did not have all data were excluded. Finally, a sample of 139 NGP firms had all data for every variable during period 1984-1988.

The Methodology

Since the dependent variable is qualitative, taking the value one if the firm goes private, and zero otherwise, the coefficients are estimated via the probit model. Although linear probability models are still occasionally employed for qualitative choice models, the resulting estimates are not efficient. Several drawbacks are associated with Ordinary Least Squares estimation of the linear probability model, but the primary problem is that the predicted values of the dependent variable are not constrained to lie between zero and one. This problem is overcome by probit estimation of the model.

The motivation for the probit model in this context is as follows. The decision of the ith firm to go private or not is a function of an unobservable "utility index" I_i, which is itself determined by the explanatory variables previously discussed. This may be written:

Equation 3.1

$$I_i = XB$$

where X is the matrix of explanatory variables, and B the vector of coefficients to be estimated. The higher the value of I_i, the greater is the probability that the firm will go private. Within this utility framework, it is assumed that some threshold level of I_i exists, denoted I_i^*. If I_i exceeds I_i^*, then the firm will go private, otherwise it will not. The probit model arises by assuming that the unobservable I_i^* is normally distributed with the same mean and variance; based on this assumption, the parameters of equation 3.1 may be estimated, and information on the index itself obtained. Thus, the probability that the ith firm is going private ($Pr(Y_i = 1)$), may be computed from the standardized normal cumulative distribution function (CDF), and written:

Equation 3.2

$$Pr(Y_i = 1) = Pr(I_i^* \leq I_i) = F(I_i)$$

where, as noted, $F(I_i)$ represents the standard normal CDF.

Maximum likelihood procedures are employed to estimate the parameters of the specified log likelihood function, with estimation results presented in Table 1. Table 2 summarizes the prediction success rate of the estimated model.

TABLE 1
Estimation Of Probit Model

Dependent Variable Y = 1 If A Firm Is Going Private, 0 Otherwise

Explanatory Variables	Coefficient Estimates[+]	Elasticity At Means
DVOP	-0.001747 (0.37277)	-0.00506
DEBT	-0.000127 (0.0237)	-0.00654
EQUIFI	0.010927 (0.5277)	0.00758
PE	-0.008431 (1.7131)**	-0.15229
PRICEBV	-0.035351 (0.3974)	-0.10393
PRICESA	0.024467 (0.9001)	0.07175
MVEQ	-0.37610 (1.6822)**	-0.72805
TA	-0.000769 (1.0353)	-1.5067
CFL	-0.013399 (1.4844)*	-1.6671
GROWTH	-0.016596 (3.0811)***	-0.34357
CFLTA	4.8175 (2.4440)***	0.61128
DIVYIELD	0.11280 (2.2903)**	0.35249
CONSTANT	0.45779 (1.6161)	0.85222

Likelihood Ratio Test = 98.0937
Cragg-Uhler R-Square = 0.4240
Maddala R-Square = 0.3173

+ Asymptotic t-statistics in parentheses.
*, **, *** indicate statistical significance at the .10, .05, and .01 levels, respectively, for the appropriate one-sided tests.

EMPIRICAL RESULTS

Before turning to the estimation results, a note on the interpretation of the estimated coefficients within a probit model may be helpful. The estimated coefficients themselves do not indicate the change in the probability of the event (here, a firm going private) occurring given a one-unit change in the relevant explanatory variable. The sign of the estimated coefficient indicates the direction of the change in probability only. The size of the change in probability, given a one-unit change in an explanatory variable, will differ based upon the initial values of all the explanatory variables and their coefficients. Thus, it is conventional to evaluate the explanatory variables at their mean values as a basis for inferring a

change in probability. In Table 1, the column headed "Elasticity at Means" indicates the percentage change in the probability of a firm going private as a result of a one-percent change in the relevant explanatory variable (when all variables are evaluated at their mean values).

Regarding Hypothesis 1 concerning the agency costs of free cash flows and of debt, two of the variables are strongly significant, and each has the expected sign. The negative sign on GROWTH indicates that firms with low growth prospects have a greater probability of going private. CFLTA, the proxy for free cash flows, suggests that firms with large free cash flows have a greater likelihood of going private. This finding is consistent with the agency cost of free cash flows hypothesis. Neither DVOP nor DEBT attained significance. The dividend yield variable (DIVYIELD) is significant and positive. This may be an indication that, in a firm providing high dividend yield on its stock, managers have an incentive to take the firm private.

Turning to Hypothesis 2, which looks at the effects of information asymmetry and firm undervaluation as factors affecting the decision to go private, two of the variables are significant and each influences the decision to go private in the hypothesized manner. Both variables capture undervaluation of the firm. The lower is the P/E ratio (PE), the greater is the likelihood that a firm will go private. The Tobin's q-ratio approximation (MVEQ) also exerts a negative influence on the probability of going private: the lower is the ratio, the more likely is the firm to go private. There is evidence from the low p/e and mveq that the firms which go private tend to be undervalued by the market than non going private firms. The remaining variables in this Hypothesis which do not attain significance are EQUIFI, which captures the effects of information asymmetry, and PRICEBV and PRICESA, which proxy undervaluation. It is likely that the multicollinearity between the undervaluation proxy variables results in less precise estimation of the independent effects of each, thus increasing their standard errors and biasing the t-statistics toward zero.

Finally, Hypothesis 3 captures the effects of size on the probability of going private: specifically, a smaller firm is expected to increase the probability of going private. As mentioned, smaller firms are likely to have a greater degree of information asymmetry and thus of undervaluation than large firms. In this way, the size proxy may pick up the effects of these two variables as well as other unknown factors. Several different size proxies were initially tried, among them total sales and market value of the firm. Although the final specification contains the variable total assets (TA), in common with the other size proxies it fails to attain significance. Again, an explanation may well be that the degree of multicollinearity among several of the included explanatory variables is too high.

TABLE TWO
Prediction Success Table

		Observed Choice	
		0	1
Predicted	0	97	22
Choice	1	42	96

Number of Right Predictions = 193
Percentage of Right Predictions = 0.75097

In addition to the significance and correct sign of several of the hypothesized explanatory variables, a number of statistics are presented as an indication of the model's performance. Various goodness-of-fit measures are available, but they require some explanation within the context of a probit model.

First, the traditional coefficient of determination, R-square, is not an appropriate indicator of goodness-of-fit within a qualitative dependent variable model. This is because the predicted values of the dependent variable are probabilities, while the actual values are either zero or one (for a dichotomous dependent variable). In fact, it is typical to get quite low R-square values within the context of all limited dependent variable models, but this is not necessarily an indication of a poor model (Maddala 1983:38).

As an alternative, several indirect pseudo R-square correlation measures have been developed for these models. Two presented here, derived from the likelihood ratio test, are the Cragg-Uhler R-square (0.4240) and the Maddala R-square

(0.3173). Again, for a binary dependent variable model these are not unusually low; in any case, it should be emphasized that universal reporting to the contrary, R-square measures for all econometric models are of quite limited usefulness in judging goodness-of-fit.

Turning to the likelihood ratio test (98.0937), we can easily reject the hypothesis that the explanatory variables have no significant effect on the probability of a firm going private. Thus, we may conclude that firms which go private can be distinguished from firms which do not go private based on the explanatory variables included in the model.

Finally, from Table 2, the prediction success table indicates that the model correctly predicts that a firm went private approximately 75% of the time.

CONCLUSION

Shareholders of publicly traded corporations have earned higher than average returns when those firms "went private". While several hypotheses concerning the source of wealth gains have been proposed, there is little empirical evidence supporting these hypotheses. Using a sample of 118 transactions from firms that went private from 1981 through 1992, this study empirically examined the "free cash flow" hypothesis. The results provide 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. The results further indicate that the ratio of a firm's undistributed cash flow to its total assets is a significant determinant of a firm's decision to go private between 1981 and 1992. Some evidence is provided for the hypothesis based on information asymmetry and stock undervaluation.

Major findings of this study are: (1) the higher the price/earnings multiple, the greater the market value to book value ratio, and the higher the growth rate, the lower is the likelihood that the firm will be taken private; and (2) the greater the ratio of cash flow to total assets and the higher the dividend yield, the greater is the probability that the firm will be taken private. This study has implications for potential shareholders. By comparing companies to the financial profile of this study of going private firms, investors may profit by purchasing shares of firms that indicate high potential for going private.

The study offers a contribution toward the construction of a theory of the characteristics of firms that go private. The contribution is offered as a plausible explanation of observed phenomena.

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