

FINANCIAL CHARACTERISTICS OF FIRMS ADOPTING POISON PILL PLANS

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ABSTRACT

This study investigates whether firms adopting poison pill plans possess financial characteristics indicative of their having free cash flow. The analysis uses six financial ratios selected to provide evidence of whether a firm has cash flows in excess of those needed to fund value-enhancing investments. A sample of 184 firms that have adopted poison pill plans were matched with firms from their industries. The results provide little evidence supporting the implications of the free cash flow theory.

I. INTRODUCTION

The possibility of a takeover may be considered the ultimate source of discipline for the managerial labor market. Critics of firms adopting 'poison pill' plans argue that the mechanism effectively precludes corporate takeovers. Thus, the adoption of a poison pill plan reduces the incentive provided by the market for managers to maximize shareholder wealth.

A 'poison pill' plan is designed to economically 'poison' an acquirer by forcing the acquirer to 'swallow' the poison pill securities. The plans may take one of many forms, all of which are designed to make a target firm prohibitively expensive for a bidder to acquire. When triggered, the plans provide target shareholders with significant economic benefits that severely penalize a bidder. Thus, the presence of poison pill securities in a target-firm's capital structure deters a potential bidding firm. The bidder is forced to negotiate with the target-firm's management for redemption of the poison pill securities. Adoption of poison pill plans has increased dramatically since the *Moran v. Household*

International decision by the Delaware Supreme Court in November, 1985. The court ruled in this case that adoption of a poison pill does not require majority approval by shareholders. (1)

One popular type of plan is the 'flip-over' rights plan. (2) Under a flip-over plan, shareholders in the potential target firm are issued share-purchase rights which have little value until a triggering event occurs. When triggered, the previously issued rights become valuable by providing holders the opportunity to buy shares of the acquiring firm at prices far below the market value of the acquiring firm's shares. Triggering events are usually defined as either the accumulation of a specified percent of outstanding shares (often 20 percent) or as the receipt of a tender offer for a specified percent of outstanding shares (often 30 percent). After a triggering event has occurred, the rights are no longer redeemable by the adopting firm's board of directors.

An example of the flip-over plan adopted by Household International

illustrates how adoption of the plan can economically poison an acquirer. The rights issued by Household provide holders with the ability to acquire \$200 worth of an acquiring firm's common stock in exchange for \$100 cash. Prior to adoption of the plan, Household shares were trading for around \$30 per share. A potential acquiring firm making a tender offer of \$45 for each of the 60 million shares (and attached rights) outstanding, usually enough to assure success when a poison pill plan has not been adopted, would pay a total of \$2.7 billion or a premium of 50 percent over the market value of the firm prior to the bid. Rational Household shareholders would not tender their shares hoping, however, that other shareholders would tender shares in sufficient numbers to trigger the poison pill. If other shareholders tendered enough of their shares to trigger the poison pill, the shareholders not tendering would receive \$145 for each of their shares (and attached rights). The nontendering shareholders would exchange a share, a right, and \$100 cash in return for \$45 cash plus \$200 worth of the acquiring firm's common stock. Thus, in order to assure the success of a tender offer, an acquirer would have to offer \$145.01 for each share and attached right raising the total cost to more than \$8.7 billion or a premium of 383 percent over the pre-offer market value of the firm.

In addition to flip-over plans, other types of poison pill plans that have been adopted by potential target firms include 'back-end' plans and 'flip-in' plans. Back-end plans typically provide for a self-tender offer by the target firm after an acquirer has purchased a sufficient number of shares, often 30 percent to 50 percent of the outstanding shares of the target. This version of the poison pill acts as a deterrent since it specifically excludes the acquirer from the self-tender offer, thereby significantly reducing the value of the shares held by the acquirer. Flip-in plans have much the same effect as

back-end plans. Flip-in plans, when triggered, typically provide for issuing large amounts of new common stock at substantial discounts to all shareholders except the acquirer. Again, the value of the shares held by the acquirer is substantially reduced.

II. AGENCY COSTS OF FREE CASH FLOW

One of the many theories advanced to explain the reasons for corporate takeovers is based upon the agency costs of free cash flow. Agency costs are defined as the loss of value suffered by the firm's shareholders as a result of the agency relationship between the firm's management and its owners. The agency relationship gives rise to the possibility of conflicts between the goals of management and the goals of shareholders (owners). (3) One of the possible conflicts involves the use of the firm's free cash flow. Free cash flow is the cash flow available from the firm's operations that cannot be reinvested profitably within the firm. Profitable reinvestment is defined as investment at rates of return greater than the rates that shareholders could earn on equally risky investments if the cash flow were available for their use.

A management team that pursues the goal of shareholder wealth maximization will pay out free cash flow in the form of a dividend to shareholders. (4) However, incentives exist for management to retain free cash flow within the firm. For example, Mueller's [9] managerialism hypothesis suggests that if managerial compensation is a function of the size of the firm, incentives exist for managers to make suboptimal investments. Murphy [10] found evidence that the level of management compensation is positively related to sales growth. This evidence suggests that managers have an incentive to expand the firm beyond the point that results in the maximization of shareholder wealth. Retention of free cash flow that should be paid to sharehold-

ers may result in managers being able to avoid the discipline of the capital market when the firm must obtain funds to finance new investments. When a firm issues new securities, the affairs of the firm are scrutinized by investment bankers and purchasers of the new securities. (5)

Proponents of poison pill plans claim that the plans are needed to protect shareholders from abuses by corporate raiders. (6) The plans may provide target-firm management with increased bargaining power by giving them veto power over alleged harmful hostile offers. Alternatively, since poison pill plans can be withdrawn without a vote by shareholders, the plans may provide target management with the bargaining power to initiate discussions with a potential higher bidder. Opponents, on the other hand, claim that the plans restrict the rights of shareholders to sell their shares to a potential acquirer. Thus, the adoption of the poison pill may serve as a method of management entrenchment. (7)

Empirical evidence provides support for the position of opponents. An examination of returns to shareholders of firms announcing the adoption of poison pill plans conducted by the Office of the Chief Economist of the Securities and Exchange Commission [11] provides evidence that market participants agree with opponents of the plans. In a sample of 179 firms, the average net-of-market returns to shareholders in a two-day event period surrounding the announcement of plan adoption was a statistically significant negative 0.65 percent with 60 percent of the firms having negative returns during the event period. When the sample was restricted to those firms subject to takeover speculation, the negative net-of-market returns were a statistically significant 1.74 percent with 70 percent of the firms having negative returns. However, when the sample was divided into two groups, only shareholders of firms adopting

discriminatory plans (plans that exclude the acquirer from self-tender offers and new issues of stock) suffered statistically significant negative net-of-market returns. Shareholders of firms adopting less restrictive plans experienced negative net-of-market returns that were not statistically significant. This evidence suggests that market participants believe that adoption of the plans reduces the probability of a takeover and is consistent with the management entrenchment hypothesis of poison pill opponents. Malatesta and Walkling [7] provide additional evidence in support of the management entrenchment hypothesis. In addition to confirming the evidence of negative returns to shareholders upon the announcement of poison pill plan adoption, the researchers examined the profitability of and the degree of concentration of ownership by management in firms adopting poison pill plans. Poison pill adopters were found to be significantly less profitable than the average firm in the industry and management of adopting firms held a significantly smaller fraction of the firm's outstanding shares. Since shareholders suffer a loss of wealth upon announcement of adoption of poison pill plans, one would expect a lower concentration of management share ownership in adopting firms.

One implication of the free cash flow theory is that firms that generate free cash flow are likely candidates for takeover. Redeployment of underinvested resources provides value-enhancing opportunities for acquiring firms. Furthermore, managers of firms with underinvested resources have the greatest incentive to engage in entrenchment activities (such as poison pill adoption) since they are more likely to lose their management positions after a change of control.

III. FINANCIAL CHARACTERISTICS OF FIRMS ADOPTING POISON PILLS

This study investigates whether firms adopting poison pill plans possess fi-

financial characteristics indicative of their having free cash flow. If firms adopting poison pill plans possess these financial characteristics, this research would provide additional support for the growing concern over poison pill adoption.

The criterion used to select variables for this study is that the selected variables should provide evidence as to whether the firm has cash flows in excess of those needed to fund value-enhancing investments. Variables providing evidence of the existence of free cash flow must be selected since free cash flows cannot be measured directly. Investigators and investors that are not part of a firm's management do not have access to information concerning profitable growth prospects for the firm. Six financial ratios were selected for examination:

a. **firm liquidity** - the ratio of liquid assets to nonliquid assets may indicate whether a firm is retaining funds rather than paying them to shareholders as dividends. A high ratio of liquid assets to nonliquid assets held by a firm adopting a poison pill plan, particularly if the ratio is larger than the industry average, would suggest that the firm is retaining free cash flows. A high liquidity ratio may also indicate that the firm is attempting to avoid the discipline of the capital market by retaining funds for future investment possibilities.

b. **cash flow return on assets** - cash flow return is defined as the firm's net income plus all noncash charges that are included in the calculation of net income. (The most common noncash charges are depreciation and deferred taxes.) A high cash flow return indicates the firm has available a large potential pool of free cash flow. A large cash flow return on assets for a firm adopting a poison pill plan, especially if the return is larger than the return earned by other firms in its industry, would suggest that we should

observe a larger dividend payout than for other firms in the industry. Failure to pay out free cash flow should result in lower stock prices due to management neglect of the shareholder wealth-maximization goal.

c. **dividends paid as a percent of operating cash flows** - a low ratio of dividends paid as a percent of operating cash flows for a firm adopting a poison pill plan would be consistent with the existence of free cash flow. Evidence supporting the position of opponents of poison pill plans would be provided by a low ratio of dividends paid as a percent of operating cash flow.

d. **growth of dividend payments to the growth of net income** - a firm with a value of this ratio that is less than one (1.00) is reducing its payout ratio over time. A low ratio of dividend payment growth to net income growth for firms adopting poison pill plans would provide evidence consistent with the existence of free cash flow. However, it is important to compare the ratio for a firm to the comparable ratio for other firms in its industry.

e. **debt to asset ratio** - a low value for the debt to asset ratio may indicate that a firm is not using the tax shield available from deductible interest payments to the extent possible. However, it must be stressed that debt ratio vary widely from industry to industry. One of the primary reasons for the variation is the stability of industry cash flows. Industries with stable cash flows (utilities, for example) tend to have high debt ratios. A low value of the debt to asset ratio compared to other firms in the industry would suggest the existence of free cash flow.

f. **fixed payment coverage** - measures the extent to which a firm's income exceeds its fixed payment obligations. The fixed payment obligations might include interest payments, principal repayments, and preferred stock dividends. Holding constant a firm's in-

vestment opportunities, the higher the fixed payment coverage ratio the greater the probability of the firm having free cash flow. As with the debt to asset ratio, the fixed payment coverage ratio varies across industries. The more stable the cash flows of the industry, the lower the fixed payment coverage ratio we should expect to observe. Thus, it is important to examine a firm's ratio in comparison to other firms in the industry.

IV. EMPIRICAL RESULTS

The database used to select a sample of firms for this study was a list of 245 firms identified in a study conducted by the Office of the Chief Economist of the Securities and Exchange Commission.[11] The list includes all firms adopting poison pill plans prior to July 4, 1986. For each of the 245 firms adopting poison pill plans, a firm from the same industry was randomly selected from the Compustat database. (8) The selected variables were calculated for each of the sample and matching firms for the fiscal year in which the sample firms adopted the poison pill plans. After screening for data availability, the sample was narrowed to 184 sets of firms. Since the possibility exists that the matching firms selected were not representative of their respective industries, industry average values were also determined. Table 1 displays the mean of the calculated values of each of the selected variables for the sample of poison pill plan adopters and their respective industries.

As indicated in Table 1, the results of this initial analysis do not appear to support the implications of the free cash flow theory. Firms that have adopted poison pill plans have a greater cash flow return on assets than the average firm in their industries. However, these firms pay a higher percentage of their operating cash flows to shareholders in the form of dividends and are increasing dividends at a

faster rate than net income is increasing. With a debt to asset ratio approximately equal to the industry average and a greater cash flow return on assets than their competitors, it is not surprising that firms adopting poison pill plans have a greater fixed payment coverage ratio than the average firm in the industry. Finally, contrary to the implications of the free cash flow theory, these firms have a lower percentage of their funds invested in nonliquid assets. In total, firms that have adopted poison pill plans appear to be well-managed firms.

The dichotomous nature of the dependent variable (adopt, not adopt) in this analysis makes the use of ordinary least squares (OLS) analysis inapplicable. (9) Use of either discriminant analysis or logistic regression are viable alternatives. However, discriminant analysis is appropriate only when the explanatory variables are multivariate normally distributed with equal covariance matrices. This assumption is not required for logit analysis. (10)

The model used in this study to specify the functional relationship between the financial characteristics of the firm and the likelihood that the firm will adopt a poison pill plan is:

$$p(y) = 1 / [1 + e^{-(a + bx)}]$$

where:

$p(y)$ = the probability of the event (poison pill adoption) occurring,

a, b = parameters to be estimated, and

x = the vector of financial characteristics of the firm.

In other words, $p(y)$ is a logit probability function of the financial characteristics of the firm.

The results of the estimation of this model using the selected variables is presented in Table 2. As might be

TABLE 1. VARIABLE VALUES FOR SAMPLE FIRMS AND THEIR INDUSTRIES

<u>VARIABLE</u>	<u>POISON PILL ADOPTERS</u>	<u>INDUSTRY AVERAGES</u>
Liquid Assets to Nonliquid Assets	8.83%	11.74%
Cash Flow Return on Assets	9.68%	9.10%
Dividends Paid to Operating Cash Flows	28.75%	15.21%
Growth of Dividends to Growth of Net Income (a)	1.68	1.50
Debt to Assets	20.20%	20.19%
Fixed Payment Coverage (b)	1.64	1.55

- (a) If either the numerator or denominator has a negative sign, the ratio will be negative. The negative values have opposing meanings. Negative dividend growth with positive income growth would suggest free cash flow while positive dividend growth with negative income growth would suggest the opposite. Therefore, the variable was recoded using a range of '0' to '3' with '0' indicating the firm (with negative dividend growth) might have large amounts of free cash flow and '3' indicating the firm (with negative income growth) likely did not have free cash flow. Thus, the 1.68 value for firms that have adopted poison pill plans indicates that these firms increasing dividends more rapidly than the industry average.
- (b) If a firm has no debt outstanding, the fixed payment coverage ratio is infinite. Therefore, the ratio was recoded using a range of '0' to '3'. Thus, the 1.64 value for firms that have adopted poison pill plans indicates that these firms have a fixed payment coverage ratio greater than the industry average.

expected from the results displayed in Table 1, only two variables are statistically significant to the explanation of the probability of a firm adopting a poison pill plan. Firms that have adopted a poison pill plan exhibit the characteristics of earning a greater cash flow return on assets and paying a larger percentage of cash flows to shareholders as dividends. The free cash flow theory implies the first result but it implies the opposite of the second result. The greater return on

assets would be retained by the firm for future (possibly unprofitable) growth under the implications of the free cash flow theory.

Further evidence of the lack of explanatory power of the free cash flow theory is demonstrated by the classification power of the model. Only 60 percent of the firms are correctly classified by the model. Of the 184 firms that adopted the poison pill plan, the model correctly classified 124 firms

TABLE 2. RESULTS OF LOGISTIC REGRESSION ANALYSIS
(t-values in parentheses)

<u>VARIABLE</u>	<u>PARAMETER ESTIMATE</u>
Intercept	-0.261 (-0.61)
Liquid Assets to Nonliquid Assets	-1.362 (-0.82)
Liquid Assets to Nonliquid Assets (Relative to Industry)	-0.103 (-0.51)
Cash Flow Return on Assets	4.028 (2.16)*
Cash Flow Return on Assets (Relative to Industry)	-0.018 (-0.50)
Dividends Paid to Operating Cash Flows	0.897 (2.02)*
Dividends Paid to Operating Cash Flows (Relative to Industry)	-0.046 (-1.25)
Growth of Dividends to Growth of Net Income	0.197 (1.62)
Debt to Assets	1.316 (0.87)
Debt to Assets (Relative to Industry)	-0.373 (-1.36)
Fixed Payment Coverage	-0.084 (-0.45)

* Significant at 0.05 level

Note: Since the variables growth of dividends to growth of net income and fixed payment coverage were recoded to qualitative variables, their inclusion as relative to industry variables is not meaningful.

(67 percent). In other words, the model incorrectly predicted that 60 of the firms that adopted the poison pill plan did not adopt a plan. Only 98 of the 184 matching firms that did not adopt a poison pill plan were correctly classified (53 percent). The model incorrectly predicted that 86 of the firms that did not adopt a poison pill plan did adopt the plan. The flip of a coin would have produced results nearly as correct as the model.

V. SUMMARY

The 'poison pill' has become a popular and quite controversial device used by corporate management to preclude and/or defend against hostile takeover attempts. Opponents of the plans claim that the plans restrict the rights of shareholders to sell their shares to a potential acquirer and may serve as a method of management entrenchment.

One of the many theories advanced to explain corporate takeovers is based upon the agency costs of free cash flow. Agency costs are defined as the loss of value suffered by the firm as a result of the agency relationship between the firm's management and its owners. The agency relationship gives rise to the possibility of conflicts between the goals of management and the goals of shareholders (owners). One of the possible conflicts involves the use of the firm's free cash flow. A management team that pursues the goal of shareholder wealth maximization will pay out free cash flow in the form of a dividend to shareholders. However, incentives exist for management to retain free cash flow within the firm.

One implication of the free cash flow theory is that firms that generate free cash flow are likely candidates for takeover. Redeployment of underinvested resources provides value-enhancing opportunities for acquiring firms. Furthermore, managers of firms with underinvested resources have the greatest incentive to engage in entrenchment

activities since they are more likely to lose their management positions after a change of control.

This study investigates whether firms adopting poison pill plans possess financial characteristics indicative of their having free cash flow. The analysis uses six financial ratios selected to provide evidence of whether a firm has cash flows in excess of those needed to fund value-enhancing investments. A sample of 184 firms that have adopted poison pill plans were matched with firms from their respective industries. The results provide little evidence supporting the implications of the free cash flow theory. Only two variables were found to be statistically significant to the explanation of the probability of a firm adopting a poison pill plan. One of these significant variables had a sign opposite to that implied by the free cash flow theory. Even though this study uses different variables, the evidence seems to conflict with the evidence of Malatesta and Walkling [7] who find that poison pill adopters are less profitable than the average their respective industries.

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FOOTNOTES

- 1 Moran v. Household International, Inc., 490 A.2d 1059 (Delaware Chancery 1985) affirmed 500 A.2d 1346 (Delaware 1985). However, the actual use of a poison pill plan to prevent a bid may be enjoined. See Kreider [6].
- 2 See [11] for a discussion of poison pill plan variations.
- 3 Jensen and Meckling [4] introduce agency costs as an explanation of corporate behavior.
- 4 Jensen [5] provides a lucid discussion of the optimal behavior of managers pursuing the goal of shareholder wealth maximization.
- 5 See Easterbrook [3] for discussion of this point.
- 6 See Carney [2] and Zalecki [17] for arguments of proponents.
- 7 Jensen [5] argues this point.
- 8 A two-digit industry code was used to select the matching firm since requiring a four-digit industry code match would have resulted in numerous industries containing only two industries.
- 9 See, for example, Theil [14] for a discussion of the failure of the qualitative dependent variable regression to meet the conditions necessary to utilize ordinary least squares.
- 10 Press and Wilson [13] discuss the conditions necessary to use logit analysis.

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