

Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers

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Corporate managers are the agents of shareholders, a relationship fraught with conflicting interests. Agency theory, the analysis of such conflicts, is now a major part of the economics literature. The payout of cash to shareholders creates major conflicts that have received little attention.¹ Payouts to shareholders reduce the resources under managers' control, thereby reducing managers' power, and making it more likely they will incur the monitoring of the capital markets which occurs when the firm must obtain new capital (see M. Rozeff, 1982; F. H. Easterbrook, 1984). Financing projects internally avoids this monitoring and the possibility the funds will be unavailable or available only at high explicit prices.

Managers have incentives to cause their firms to grow beyond the optimal size. Growth increases managers' power by increasing the resources under their control. It is also associated with increases in managers' compensation, because changes in compensation are positively related to the growth

in sales (see Kevin Murphy, 1985). The tendency of firms to reward middle managers through promotion rather than year-to-year bonuses also creates a strong organizational bias toward growth to supply the new positions that such promotion-based reward systems require (see George Baker, 1986).

Competition in the product and factor markets tends to drive prices towards minimum average cost in an activity. Managers must therefore motivate their organizations to increase efficiency to enhance the probability of survival. However, product and factor market disciplinary forces are often weaker in new activities and activities that involve substantial economic rents or quasi rents.² In these cases, monitoring by the firm's internal control system and the market for corporate control are more important. Activities generating substantial economic rents or quasi rents are the types of activities that generate substantial amounts of free cash flow.

Free cash flow is cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital. Conflicts of interest between shareholders and managers over payout policies are especially severe when the organization generates substantial free cash flow. The problem is how to motivate managers to disgorge the cash rather than investing it at below the cost of capital or wasting it on organization inefficiencies.

The theory developed here explains 1) the benefits of debt in reducing agency costs of free cash flows, 2) how debt can substitute

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¹Gordon Donaldson (1984) in his study of 12 large Fortune 500 firms concludes that managers of these firms were not driven by maximization of the value of the firm, but rather by the maximization of "corporate wealth," defined as "the aggregate purchasing power available to management for strategic purposes during any given planning period" (p. 3). "In practical terms it is cash, credit, and other corporate purchasing power by which management commands goods and services" (p. 22).

²Rents are returns in excess of the opportunity cost of the resources to the activity. Quasi rents are returns in excess of the short-run opportunity cost of the resources to the activity.

for dividends, 3) why "diversification" programs are more likely to generate losses than takeovers or expansion in the same line of business or liquidation-motivated takeovers, 4) why the factors generating takeover activity in such diverse activities as broadcasting and tobacco are similar to those in oil, and 5) why bidders and some targets tend to perform abnormally well prior to takeover.

I. The Role of Debt in Motivating Organizational Efficiency

The agency costs of debt have been widely discussed, but the benefits of debt in motivating managers and their organizations to be efficient have been ignored. I call these effects the "control hypothesis" for debt creation.

Managers with substantial free cash flow can increase dividends or repurchase stock and thereby pay out current cash that would otherwise be invested in low-return projects or wasted. This leaves managers with control over the use of future free cash flows, but they can promise to pay out future cash flows by announcing a "permanent" increase in the dividend. Such promises are weak because dividends can be reduced in the future. The fact that capital markets punish dividend cuts with large stock price reductions is consistent with the agency costs of free cash flow.

Debt creation, without retention of the proceeds of the issue, enables managers to effectively bond their promise to pay out future cash flows. Thus, debt can be an effective substitute for dividends, something not generally recognized in the corporate finance literature. By issuing debt in exchange for stock, managers are bonding their promise to pay out future cash flows in a way that cannot be accomplished by simple dividend increases. In doing so, they give shareholder recipients of the debt the right to take the firm into bankruptcy court if they do not maintain their promise to make the interest and principle payments. Thus debt reduces the agency costs of free cash flow by reducing the cash flow available for spending at the discretion of managers. These control

effects of debt are a potential determinant of capital structure.

Issuing large amounts of debt to buy back stock also sets up the required organizational incentives to motivate managers and to help them overcome normal organizational resistance to retrenchment which the payout of free cash flow often requires. The threat caused by failure to make debt service payments serves as an effective motivating force to make such organizations more efficient. Stock repurchase for debt or cash also has tax advantages. (Interest payments are tax deductible to the corporation, and that part of the repurchase proceeds equal to the seller's tax basis in the stock is not taxed at all.)

Increased leverage also has costs. As leverage increases, the usual agency costs of debt rise, including bankruptcy costs. The optimal debt-equity ratio is the point at which firm value is maximized, the point where the marginal costs of debt just offset the marginal benefits.

The control hypothesis does not imply that debt issues will always have positive control effects. For example, these effects will not be as important for rapidly growing organizations with large and highly profitable investment projects but no free cash flow. Such organizations will have to go regularly to the financial markets to obtain capital. At these times the markets have an opportunity to evaluate the company, its management, and its proposed projects. Investment bankers and analysts play an important role in this monitoring, and the market's assessment is made evident by the price investors pay for the financial claims.

The control function of debt is more important in organizations that generate large cash flows but have low growth prospects, and even more important in organizations that must shrink. In these organizations the pressures to waste cash flows by investing them in uneconomic projects is most serious.

II. Evidence from Financial Restructuring

The free cash flow theory of capital structure helps explain previously puzzling results

on the effects of financial restructuring. My paper with Clifford Smith (1985, Table 2) and Smith (1986, Tables 1 and 3) summarize more than a dozen studies of stock price changes at announcements of transactions which change capital structure. Most leverage-increasing transactions, including stock repurchases and exchange of debt or preferred for common, debt for preferred, and income bonds for preferred, result in significantly positive increases in common stock prices. The 2-day gains range from 21.9 percent (debt for common) to 2.2 percent (debt or income bonds for preferred). Most leverage-reducing transactions, including the sale of common, and exchange of common for debt or preferred, or preferred for debt, and the call of convertible bonds or convertible preferred forcing conversion into common, result in significant decreases in stock prices. The 2-day losses range from -9.9 percent (common for debt) to -.4 percent (for call of convertible preferred forcing conversion to common). Consistent with this, free cash flow theory predicts that, except for firms with profitable unfunded investment projects, prices will rise with unexpected increases in payouts to shareholders (or promises to do so), and prices will fall with reductions in payments or new requests for funds (or reductions in promises to make future payments).

The exceptions to the simple leverage change rule are targeted repurchases and the sale of debt (of all kinds) and preferred stock. These are associated with abnormal price declines (some of which are insignificant). The targeted repurchase price decline seems to be due to the reduced probability of takeover. The price decline on the sale of debt and preferred stock is consistent with the free cash flow theory because these sales bring new cash under the control of managers. Moreover, the magnitudes of the value changes are positively related to the change in the tightness of the commitment bonding the payment of future cash flows, for example, the effects of debt for preferred exchanges are smaller than the effects of debt for common exchanges. Tax effects can explain some of these results, but not all, for

example, the price increases on exchange of preferred for common, which has no tax effects.

III. Evidence from Leveraged Buyout and Going Private Transactions

Many of the benefits in going private and leveraged buyout (*LBO*) transactions seem to be due to the control function of debt. These transactions are creating a new organizational form that competes successfully with the open corporate form because of advantages in controlling the agency costs of free cash flow. In 1984, going private transactions totaled \$10.8 billion and represented 27 percent of all public acquisitions (by number, see W. T. Grimm, 1985, Figs. 36 and 37). The evidence indicates premiums paid average over 50 percent.³

Desirable leveraged buyout candidates are frequently firms or divisions of larger firms that have stable business histories and substantial free cash flow (i.e., low growth prospects and high potential for generating cash flows)—situations where agency costs of free cash flow are likely to be high. The *LBO* transactions are frequently financed with high debt; 10 to 1 ratios of debt to equity are not uncommon. Moreover, the use of strip financing and the allocation of equity in the deals reveal a sensitivity to incentives, conflicts of interest, and bankruptcy costs.

Strip financing, the practice in which risky nonequity securities are held in approximately equal proportions, limits the conflict of interest among such securities' holders and therefore limits bankruptcy costs. A somewhat oversimplified example illustrates the point. Consider two firms identical in every respect except financing. Firm *A* is entirely financed with equity, and firm *B* is highly leveraged with senior subordinated debt, convertible debt and preferred as well

³See H. DeAngelo et al. (1984), and L. Lowenstein (1985). Lowenstein also mentions incentive effects of debt, but argues tax effects play a major role in explaining the value increase.

as equity. Suppose firm *B* securities are sold only in strips, that is, a buyer purchasing *X* percent of any security must purchase *X* percent of all securities, and the securities are "stapled" together so they cannot be separated later. Security holders of both firms have identical unlevered claims on the cash flow distribution, but organizationally the two firms are very different. If firm *B* managers withhold dividends to invest in value-reducing projects or if they are incompetent, strip holders have recourse to remedial powers not available to the equity holders of firm *A*. Each firm *B* security specifies the rights its holder has in the event of default on its dividend or coupon payment, for example, the right to take the firm into bankruptcy or to have board representation. As each security above the equity goes into default, the strip holder receives new rights to intercede in the organization. As a result, it is easier and quicker to replace managers in firm *B*.

Moreover, because every security holder in the highly levered firm *B* has the same claim on the firm, there are no conflicts among senior and junior claimants over reorganization of the claims in the event of default; to the strip holder it is a matter of moving funds from one pocket to another. Thus firm *B* need never go into bankruptcy, the reorganization can be accomplished voluntarily, quickly, and with less expense and disruption than through bankruptcy proceedings.

Strictly proportional holdings of all securities is not desirable, for example, because of IRS restrictions that deny tax deductibility of debt interest in such situations and limits on bank holdings of equity. However, riskless senior debt needn't be in the strip, and it is advantageous to have top-level managers and venture capitalists who promote the transactions hold a larger share of the equity. Securities commonly subject to strip practices are often called "mezzanine" financing and include securities with priority superior to common stock yet subordinate to senior debt.

Top-level managers frequently receive 15–20 percent of the equity. Venture capi-

talists and the funds they represent retain the major share of the equity. They control the board of directors and monitor managers. Managers and venture capitalists have a strong interest in making the venture successful because their equity interests are subordinate to other claims. Success requires (among other things) implementation of changes to avoid investment in low return projects to generate the cash for debt service and to increase the value of equity. Less than a handful of these ventures have ended in bankruptcy, although more have gone through private reorganizations. A thorough test of this organizational form requires the passage of time and another recession.

IV. Evidence from the Oil Industry

Radical changes in the energy market since 1973 simultaneously generated large increases in free cash flow in the petroleum industry and required a major shrinking of the industry. In this environment the agency costs of free cash flow were large, and the takeover market has played a critical role in reducing them. From 1973 to the late 1970's, crude oil prices increased tenfold. They were initially accompanied by increases in expected future oil prices and an expansion of the industry. As consumption of oil fell, expectations of future increases in oil prices fell. Real interest rates and exploration and development costs also increased. As a result the optimal level of refining and distribution capacity and crude reserves fell in the late 1970's and early 1980's, leaving the industry with excess capacity. At the same time profits were high. This occurred because the average productivity of resources in the industry increased while the marginal productivity decreased. Thus, contrary to popular beliefs, the industry had to shrink. In particular, crude oil reserves (the industry's major asset) were too high, and cutbacks in exploration and development (*E&D*) expenditures were required (see my 1986 paper).

Price increases generated large cash flows in the industry. For example, 1984 cash flows of the ten largest oil companies were \$48.5 billion, 28 percent of the total cash flows of

the top 200 firms in Dun's *Business Month* survey. Consistent with the agency costs of free cash flow, management did not pay out the excess resources to shareholders. Instead, the industry continued to spend heavily on *E&D* activity even though average returns were below the cost of capital.

Oil industry managers also launched diversification programs to invest funds outside the industry. The programs involved purchases of companies in retailing (Marcor by Mobil), manufacturing (Reliance Electric by Exxon), office equipment (Vydec by Exxon), and mining (Kennecott by Sohio, Anaconda Minerals by Arco, Cyprus Mines by Amoco). These acquisitions turned out to be among the least successful of the last decade, partly because of bad luck (for example, the collapse of the minerals industry) and partly because of a lack of managerial expertise outside the oil industry. Although acquiring firm shareholders lost on these acquisitions, the purchases generated social benefits to the extent they diverted cash to shareholders (albeit to target shareholders) that otherwise would have been wasted on unprofitable real investment projects.

Two studies indicate that oil industry exploration and development expenditures have been too high since the late 1970's. John McConnell and Chris Muscarella (1986) find that announcements of increases in *E&D* expenditures by oil companies in the period 1975-81 were associated with systematic *decreases* in the announcing firm's stock price, and vice versa. These results are striking in comparison with their evidence that the opposite market reaction occurs to changes in investment expenditures by industrial firms, and similar SEC evidence on increases in *R&D* expenditures. (See Office of the Chief Economist, SEC, 1985.) B. Picchi's study of returns on *E&D* expenditures for 30 large oil firms indicates on average the industry did not earn "...even a 10% return on its pretax outlays" (1985, p. 5) in the period 1982-84. Estimates of the average ratio of the present value of future net cash flows of discoveries, extensions, and enhanced recovery to *E&D* expenditures for the industry ranged from less than 60 to 90

cents on every dollar invested in these activities.

V. Takeovers in the Oil Industry

Retrenchment requires cancellation or delay of many ongoing and planned projects. This threatens the careers of the people involved, and the resulting resistance means such changes frequently do not get made in the absence of a crisis. Takeover attempts can generate crises that bring about action where none would otherwise occur.

Partly as a result of Mesa Petroleum's efforts to extend the use of royalty trusts which reduce taxes and pass cash flows directly through to shareholders, firms in the oil industry were led to merge, and in the merging process they incurred large increases in debt, paid out large amounts of capital to shareholders, reduced excess expenditures on *E&D* and reduced excess capacity in refining and distribution. The result has been large gains in efficiency and in value. Total gains to shareholders in the Gulf/Chevron, Getty/Texaco, and Dupont/Conoco mergers, for example, were over \$17 billion. More is possible. Allen Jacobs (1986) estimates total potential gains of about \$200 billion from eliminating inefficiencies in 98 firms with significant oil reserves as of December 1984.

Actual takeover is not necessary to induce the required retrenchment and return of resources to shareholders. The restructuring of Phillips and Unocal (brought about by threat of takeover) and the voluntary Arco restructuring resulted in stockholder gains ranging from 20 to 35 percent of market value (totaling \$6.6 billion). The restructuring involved repurchase of from 25 to 53 percent of equity (for over \$4 billion in each case), substantially increased cash dividends, sales of assets, and major cutbacks in capital spending (including *E&D* expenditures). Diamond-Shamrock's reorganization is further support for the theory because its market value fell 2 percent on the announcement day. Its restructuring involved, among other things, *reducing* cash dividends by 43 percent, repurchasing 6 percent of its shares for \$200 million, selling 12 percent of a newly created

master limited partnership to the public, and increasing expenditures on oil and gas exploration by \$100 million/year.

VI. Free Cash Flow Theory of Takeovers

Free cash flow is only one of approximately a dozen theories to explain takeovers, all of which I believe are of some relevance (see my 1986 paper). Here I sketch out some empirical predictions of the free cash flow theory, and what I believe are the facts that lend it credence.

The positive market response to debt creation in oil industry takeovers (as well as elsewhere, see Robert Bruner, 1985) is consistent with the notion that additional debt increases efficiency by forcing organizations with large cash flows but few high-return investment projects to disgorge cash to investors. The debt helps prevent such firms from wasting resources on low-return projects.

Free cash flow theory predicts which mergers and takeovers are more likely to destroy, rather than to create, value; it shows how takeovers are both evidence of the conflicts of interest between shareholders and managers, and a solution to the problem. Acquisitions are one way managers spend cash instead of paying it out to shareholders. Therefore, the theory implies managers of firms with unused borrowing power and large free cash flows are more likely to undertake low-benefit or even value-destroying mergers. Diversification programs generally fit this category, and the theory predicts they will generate lower total gains. The major benefit of such transactions may be that they involve less waste of resources than if the funds had been internally invested in unprofitable projects. Acquisitions not made with stock involve payout of resources to (target) shareholders and this can create net benefits even if the merger generates operating inefficiencies. Such low-return mergers are more likely in industries with large cash flows whose economics dictate that exit occur. In declining industries, mergers within the industry will create value, and mergers outside the industry are more likely to be low- or even negative-return projects. Oil fits this descrip-

tion and so does tobacco. Tobacco firms face declining demand due to changing smoking habits but generate large free cash flow and have been involved in major acquisitions recently. Forest products is another industry with excess capacity. Food industry mergers also appear to reflect the expenditure of free cash flow. The industry apparently generates large cash flows with few growth opportunities. It is therefore a good candidate for leveraged buyouts and these are now occurring. The \$6.3 billion Beatrice LBO is the largest ever. The broadcasting industry generates rents in the form of large cash flows on its licenses and also fits the theory. Regulation limits the supply of licenses and the number owned by a single entity. Thus, profitable internal investments are limited and the industry's free cash flow has been spent on organizational inefficiencies and diversification programs—making these firms takeover targets. CBS's debt for stock restructuring fits the theory.

The theory predicts value increasing takeovers occur in response to breakdowns of internal control processes in firms with substantial free cash flow and organizational policies (including diversification programs) that are wasting resources. It predicts hostile takeovers, large increases in leverage, dismantlement of empires with few economics of scale or scope to give them economic purpose (for example, conglomerates), and much controversy as current managers object to loss of their jobs or the changes in organizational policies forced on them by threat of takeover.

The debt created in a hostile takeover (or takeover defense) of a firm suffering severe agency costs of free cash flow is often not permanent. In these situations, leveraging the firm so highly that it cannot continue to exist in its old form generates benefits. It creates the crisis to motivate cuts in expansion programs and the sale of those divisions which are more valuable outside the firm. The proceeds are used to reduce debt to a more normal or permanent level. This process results in a complete rethinking of the organization's strategy and its structure. When successful a much leaner and competitive

organization results.

Consistent with the data, free cash flow theory predicts that many acquirers will tend to have exceptionally good performance prior to acquisition. (Again, the oil industry fits well.) That exceptional performance generates the free cash flow for the acquisition. Targets will be of two kinds: firms with poor management that have done poorly prior to the merger, and firms that have done exceptionally well and have large free cash flow which they refuse to pay out to shareholders. Both kinds of targets seem to exist, but more careful analysis is desirable (see D. Mueller, 1980).

The theory predicts that takeovers financed with cash and debt will generate larger benefits than those accomplished through exchange of stock. Stock acquisitions tend to be different from debt or cash acquisitions and more likely to be associated with growth opportunities and a shortage of free cash flow; but that is a topic for future consideration.

The agency cost of free cash flow is consistent with a wide range of data for which there has been no consistent explanation. I have found no data which is inconsistent with the theory, but it is rich in predictions which are yet to be tested.

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