

**DEBT FINANCING AND MANAGER-SHAREHOLDER AGENCY COSTS\***

by

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**Abstract:** This refinement of Jensen's (1986) free cash flow hypothesis shows that the agency conflict surrounding free cash flows extends, as well, to other discretionary resources. This conclusion has many implications, which collectively render Jensen's primary explanation for leveraged takeovers dubious. Yet he has a second related explanation in which LBOs repay debt quickly using the proceeds from asset sales, plant closings, and then initial public offerings. This paper drops the exclusive emphasis on free cash and expands upon the themes Jensen raises in this second explanation, focusing in particular on LBOs' use of short-term debt maturities.

In 1986 Michael Jensen forwarded a highly appealing and widely cited explanation for leveraged takeovers and takeover defenses. He focused on agency problems surrounding "free cash," defined as corporate cash in excess of what is needed to finance all positive net present value projects. By definition the firm has no productive use for this cash and should return it to shareholders. But if management has only weak incentives to maximize value, it may divert the money for other purposes. Debt, said Jensen, can address this problem. Specifically, the firm can issue debt and give the proceeds to shareholders. As free cash accrues, management must then commit it to servicing the debt.<sup>1</sup>

At the close of this article Jensen briefly proposed a second explanation: in severe cases free cash problems could best be resolved by leveraging the firm so high that it can avoid default only by cutting expansion programs and selling underperforming assets. The process is crisis-motivated, he explained, and "results in a complete rethinking of the organizations' strategy and structure (p.328)." This theory differs from the first in that management sells the assets generating these cash flows rather than merely paying them out as they accrue, and it repays debts with the proceeds. In Jensen's first explanation the firm's debts are permanent. In this second explanation they are not.

Both explanations identify an important source of restructuring gains. The empirical evidence is mixed but on balance supportive, especially in specific settings and in the presence of weak managerial incentives.

This paper refines Jensen's framework in two ways. First, it argues that while free cash may warrant special consideration as the most discretionary resource at management's disposal, it is not the only discretionary resource.<sup>2</sup> Nothing about this agency conflict is unique to free cash. The problem Jensen describes — and debt's role in resolving it — are more general than he suggests. To illustrate, suppose a forest-products firm<sup>3</sup> cuts down trees each

period and distributes all proceeds via a \$100 million dividend. As such, it has no free cash. Yet management can vary output, and because of environmental concerns it may harvest less than profit maximization would dictate. Despite the absence of free cash, managerial discretion can give rise to shirking.

Second, because the agency problem is not resource-specific, it cannot be addressed by targeting a specific resource. A debt issue designed to match creditor obligations against free cash flow may absorb all free cash, but little may prevent management from substituting other discretionary resources to finance its non-value-maximizing pursuits. An acquisition-minded CEO foreclosed from making cash tender offers may use stock. Managers with less cash may indeed curtail perquisites — but they could also cut profitable R&D. In the hypothetical, management may not harvest more trees to service added debts if it can reduce the \$100 million dividend and continue shirking. Various observers have expressed concerns that cash-strapped LBO managers could divert resources from profitable activities, and the empirical evidence reviewed in the next section indicates that such concerns are sometimes well-founded.

With these two refinements, the paper argues that even with a broader scope, Jensen's first hypothesis — that permanent or semi-permanent debt commits management to liquidate and disgorge "free" discretionary resources as they accrue — does not hold up to close scrutiny. If management can substitute between discretionary resources, then modest amounts of debt may do little to constrain managerial behavior. In contrast, higher debts might indeed discipline management. By borrowing (and paying out) much of the firm's future profits up front, management retains little discretion to divert resources of any kind to non-value-maximizing pursuits. Yet this strategy involves greater bankruptcy risk and all the attendant agency costs (Jensen and Meckling, 1976).

Of course, Jensen recognizes the tension between reducing agency costs of free cash and raising the agency costs of debt. But he argues that recent institutional and financial innovations have lowered the latter costs and make it possible for firms to use high long run debts to reduce free cash agency problems.<sup>4</sup>

Jensen has been charged with overstating the extent to which these innovations have reduced bankruptcy costs. Here, though, the empirical significance of these costs does not matter. In advocating a modified version of Jensen's second hypothesis — that large quantities of short-term debt commit management to cut expansion programs and sell underperforming assets — this paper focuses on the speed with which firms can capture debt's control benefits. If the flow of benefits is high initially but then quickly begins to subside (as the restructuring progresses), then regardless of whether the agency costs of debt are as low as Jensen has claimed or as high as others contend, equating the marginal costs and benefits of debt over time implies a program of rapid debt repayment that begins as soon as the LBO is complete.

The explanation forwarded here differs from Jensen's second hypothesis in three respects. First, it makes no mention of free cash. Second, this paper emphasizes debt maturities. Finally, while Jensen's description of events highlights the crisis-motivated introspection that occurs after LBOs, this paper argues that any introspection comes ex ante, and that ex post management has a well-defined plan. Those who specialize in financing LBOs forecast the speed with which a prospective LBO can restructure, as well as the forces that might conspire to slow down this process. They then determine debt levels and maturities to establish well-defined goals and deadlines that force management to work quickly but also incorporate optimal margins for error. Ex post management must work quickly to avoid default, but it has a fully articulated

plan. This approach cuts to the heart of the agency conflict surrounding free resources and accommodates high debt only as long as necessary.

Section I surveys the empirical record. Section II shows why low debts do not commit management to disgorge free cash as it arises. Section III demonstrates how short-term debt can reduce the agency problems associated with discretionary resources by forcing management to sell assets to pay down debt quickly. A conclusion follows.

## **I. THE EMPIRICAL EVIDENCE**

Empirically, this paper's differences with Jensen's work revolve around points along two continua: how important must other discretionary resources be for Jensen's exclusive emphasis on free cash to be unwarranted; and in how many sectors of the economy must the modern corporation yield to organizations with debt as their major source of capital (Jensen, 1989, p. 61) before Jensen's emphasis on "permanence" holds sway? This section reviews the evidence.

### **A. Free Cash Versus Other Discretionary Resources**

Among the dozen forces driving the recent wave of mergers and acquisitions, only tax considerations and free cash flow agency problems are linked specifically to the debt financing that often accompanies them. Relaxed antitrust laws, for example, may drive some activity, but they do not explain why it involves so much debt. Since Jensen downplays the importance of tax considerations,<sup>5</sup> in practice this leaves only free cash as his primary explanation for the very high debt-equity ratios observed in many leveraged restructurings.

Much empirical evidence is consistent with Jensen's free cash models. For example, if free cash agency problems depress profits prior to LBOs, then operating performance should improve markedly afterward. Jensen points to the large premia accruing to target shareholders in LBOs, and subsequent research

(e.g., Kaplan (1989a), Smith (1990), and Opler (1992)) has shown that LBO shareholders' gains often involve wealth creation rather than redistribution.<sup>6</sup>

Yet across-the-board Jensen's evidence is consistent, as well, with the proposition that similar agency problems could stem from sources of discretion other than free cash, including R&D, working capital, dividend payouts, stock-financed acquisitions, and (recalling the introduction's hypothetical) even lumber. These other conflicts could also explain post-LBO improvements in operating performance and high returns to target shareholders.

Or consider the attention Jensen (1988, p.323 - 328) gives to the relationship between unanticipated changes in firms' payouts and the returns to their stockholders. Jensen argues (1988, p.327) that 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 will fall with reductions in the payments or new requests for funds from shareholders (or reductions in promises to make future payments). Moreover, the size of the value changes is positively related to the change in the tightness of the commitment bonding the payment of future cash flows.

Jensen uses evidence from Smith (1986) and others to show that these predictions are borne out in practice. Yet he concedes that the results "seem too good" (p.328) in that they "... do not distinguish firms that have free cash flow from those that do not have free cash flow." The agency conflict in the hypothetical forest-products firm predicts the same outcome: an environmentally-minded manager who credibly promises to increase payouts must cut more trees, and the stock price reacts as if the promise involved free cash.

Recent work explicitly measures free cash. Lehn and Poulsen (1989) show a marginally significant relationship between undistributed cash flow and the likelihood of going private, and the size of the takeover premium rises with the amount of undistributed cash flow. These results turn highly significant

for specific periods and where managers own little equity ex ante. Opler and Titman (1991) find that high cash flows are not by themselves significant, but high cash flow firms that also have low Tobin's  $q$  are indeed more likely to undertake LBOs. They conclude that consistent with Jensen's hypothesis, firms with high cash flows and low growth prospects are good LBO candidates. Bhagat, Shleifer, and Vishny (1990) find little systematic evidence of free cash effects, but agree that these effects show up in the oil and gas industry (where Jensen focuses attention). Under conditions Jensen describes as ideal — low growth, weak incentives, and specific industries — free cash does indeed appear to precipitate LBOs. Jensen's attention to free cash appears warranted.

But is the lack of attention to other resources also warranted? An important role for free cash in LBOs does not preclude the influence of other discretionary resources, and even where conflicts over free cash loom large, other sources of discretion may render LBOs less viable if ex post managers deprived of free cash can substitute other resources and continue shirking. Jensen raises this prospect in connection with R&D (e.g., 1988, p.320-321). Kaplan (1989a), Smith (1990), Lichtenberg and Siegel (1990), Opler (1992), Palepu (1990), Stein (1989), and others also address this possibility.

Yet Jensen also argues that economy-wide R&D did not suffer from the 1980s wave of leveraged restructurings, and recent work specifically addressing R&D in LBOs (e.g., Smith (1990), Lichtenberg and Siegel (1990), and Opler (1992)) confirms that post-LBO R&D does not suffer. Smith (1990) also finds no significant reductions in advertising or maintenance and repair expenditures, though data limitations prompt her to suggest a cautious interpretation of the results.

On the other hand, Lichtenberg and Siegel (1990), Hall (1991), and Opler (1992) point out that while LBOs tend not to reduce R&D ex post, these firms have little R&D ex ante, and these and other studies argue that R&D-intensive



businesses are not good buyout candidates — managers in financial distress may cut profitable R&D. Smith (1990) finds strong evidence that working capital tightens after LBOs and yields improvements in performance. Lichtenberg and Siegel (1990) document post-LBO reductions in the ratio of white-collar to blue-collar labor. And Bhagat, Shleifer, and Vishny (1990) illustrate non-cash agency conflicts in the case of Pacific Lumber. Thus, discretion over other resources, including the size of the managerial ranks, may precipitate LBOs.<sup>7</sup>

Finally, many interested observers argue that LBOs are often precipitated by agency conflicts over managerial acquisitions. Since acquisitions could be financed out of free cash, LBOs designed to usurp managerial discretion in this realm and to reverse past mistakes belong under Jensen's original analysis, and he does indeed mention this prospect repeatedly. Yet many acquisitions are financed by stock (or a combination of cash and stock), and as such many firms without significant cash balances could face the same agency conflict.

Summarizing, Jensen's own evidence is consistent with the free cash flow hypothesis and the hypothesis that other sources of managerial discretion also drive LBOs. Subsequent research shows that free cash is indeed important. Yet there is also sufficient evidence of agency conflicts over other discretionary resources to imply that these other resources also warrant attention.

#### B. Permanent Versus Transitory Debts

Jensen's (1986) original exposition of free cash agency problems raises the "quick repayment" scenario just four paragraphs from the end, and in subsequent refinements he confirms his belief that while LBOs sometimes pay down debts quickly, often they do not. In contrast, this paper argues in favor of quick repayment, and it predicts (with the benefit of greater hindsight) that this outcome will prevail most often. The evidence supports this view. For

example, in Smith's (1990) sample of 58 LBO firms, a majority sold 20% or more of their assets within three years. Moreover, 39 firms in this sample also took deliberate financial measures to lower the debt levels that prevailed initially — 17 made public offerings of common stock and 12 were acquired outright. Muscarella and Vetsuypens (1990), Kaplan (1991), and Liebeskind, Wiersema, and Hansen (1992) also show the empirical significance of selloffs.

Bhagat, Shleifer, and Vishny (1990) conclude that "... it is absolutely clear from these data that selling off divisions is one of the most pervasive consequences of hostile takeovers (p.35)", with the result a liquidation or near-liquidation of the target. They report an unweighted average of 44% of assets in their sample divested within three years after the LBO. Morck, Shleifer, and Vishny (1990) arrive at similar conclusions.

Mitchell and Lehn (1990) argue that a major motive for takeovers has been the restoration of stockholder value lost because of the targets' prior misguided acquisitions. They examine acquiring firms, some of which later became targets and some of which did not. Among those that became targets, stock prices declined significantly (on average over three percent) during the 45-day period surrounding the announcement of their acquisitions. Among firms that did not later become targets, stock prices increased (and by the same amount) upon announcement. The more negative the market's response to an acquisition, the more likely the acquiring firm was to become a subsequent target. Over 40% of the acquisitions by companies that eventually became targets were later divested, versus only nine percent for firms that did not become targets.

Finally, Opler (1990) found that 97% of revolver and senior debt in his sample of 57 large LBOs was secured with explicit commitments to sell assets, indicating that from their very conception LBOs intend to sell assets.

## II. FREE CASH FLOW THEORY WITHOUT THE EXCLUSIVE FREE CASH EMPHASIS

This section raises three problems with Jensen's first free cash model. First, his account of the disciplinary role played by outside capital markets rests on the dubious assumptions that potential new investors monitor management more closely than incumbent security holders, and that they have greater disciplinary powers. Second, if management cannot commit to a dividend increase, then no positive dividend is credible. Third, if agency problems are severe, resource cuts can aggravate the conflict.

### A. On the Monitoring Role of Outside Capital Markets

Jensen argues that management must undergo greater scrutiny from buyers of new claims than from investors with claims outstanding (1988,p.323):<sup>8</sup>

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.

Yet he never explains why investors price new claims with greater or lesser care than identical claims outstanding. Empirical evidence on the efficient markets hypothesis confirms that prices of outstanding claims quickly adjust to new information.<sup>9</sup> Moreover, potential new investors will veto wasteful projects only if a firm has sufficient leverage to create a tangible default risk. Otherwise creditors have no reason to balk at new loans. To enlist outside capital markets, shareholders must force the firm to borrow enough that management cannot easily approach new creditors (without good reason) for additional funds. Only then can these new investors, unlike their established counterparts, veto management's spending plans.<sup>10</sup>

## B. Dividend Cuts

Jensen also argues that if management could raise the firm's dividend and credibly commit not to reduce it later, high debts would not be needed. Shareholders could force management to maximize value to pay dividends. The hypothetical forest-products firm could raise its \$100 million dividend and thereby commit managers to cut more trees. Unfortunately, says Jensen, management can not commit to higher dividends.<sup>11</sup> If a firm defaults on its debts, creditors can drag it into bankruptcy court. No such sanction protects the dividend.

Yet either management can renege on its dividend or it cannot. If it cannot, then no debt is needed. If it can, then no positive dividend is credible. If management cannot commit to \$200 million in dividends, it cannot commit to \$100 million: issuing debt and paying out the proceeds has little effect if management can later cut its \$100 million dividend, use the "savings" to service the debt, and continue giving priority to environmental concerns. Shareholders' may then be forced to preempt dividend cuts by having the firm borrow heavily against discounted future profits and pay out these monies up front.

## C. Cutting Discretionary Resources Can Exacerbate Agency Conflicts

In Jensen's model managers allocate cash first to profitable projects and only then to unprofitable ones. Agency conflicts arise only if the manager has more cash than valuable projects. This assumption has a strong intuitive appeal, since even managers interested primarily in growth or amenity consumption have incentives to choose more rather than less profitable investments.<sup>12</sup> Yet it does not follow that agency conflicts surrounding "excess" discretion could be resolved simply by reducing the discretionary resources at management's disposal. Managers constrained by debt service obligations may forego profitable R&D, advertising, plant and equipment, working capital, and the like.

To illustrate, consider a very simple profit function of the form

$$(1) \quad \Pi = P_Q Q(K) - P_K K - P_A A,$$

where  $Q$ ,  $K$ , and  $A$ , respectively, denote output, the capital input, and managerial amenities, and where  $P_Q$ ,  $P_K$ , and  $P_A$  are prices. Assume that  $dQ/dK > 0$  and  $d^2Q/dK^2 < 0$ . Suppose the manager derives utility from both amenity consumption and wealth:  $U = U(W, A)$ , where  $dU/dW > 0$ ,  $dU/dA > 0$ , and  $1 > dW/d\Pi = t > 0$ .<sup>13</sup> Absent a binding resource constraint the utility-maximizing manager derives two first order conditions:

$$(2) \quad P_Q (dQ/dK) = P_K; \quad \text{and}$$

$$(3) \quad (dU/dW) = (dU/dA)/t |d\Pi/dA|.$$

Equation (2) says the manager equates the value marginal product of capital with its hire price in textbook fashion. With no resource constraint management fully finances all profitable activities. Equation (3) sets amenity consumption such that the manager's marginal utility per dollar expended is the same for take-home pay and on-the-job consumption. Here  $t |d\Pi/dA| = tP_A$  is the manager's opportunity cost of amenity consumption, and with  $t < 1$  we get the standard agency problem involving overconsumption of amenities.

Next introduce a binding resource constraint,  $P_K K + P_A A = R$ . Substituting this into (1) gives rise to equation (3) alone. And now

$$(4) \quad t |d\Pi/dA| = tP_A (dQ/dK) (P_Q/P_K) > tP_A.$$

With a binding resource constraint management faces a higher opportunity cost of amenities and reduces its consumption. Yet from (4) it follows that this opportunity cost rises only because  $P_Q (dQ/dK) > P_K$ : the value marginal product of capital exceeds its hire price and some profitable investments go unfunded. Management reduces amenity consumption because it bears a fraction

not only of the direct cost of  $P_A$  per unit, but also the foregone profits that amenities engender. Cutting resources addresses one source of inefficiency (too many amenities) by creating another (foregone profits). If, in practice, pay-for-performance links are as weak as Jensen himself claims (see Jensen and Murphy (1989)), and if it is these weak links that precipitate restructurings, then resource cuts work crudely and can do more harm than good.<sup>14</sup> Managers given sufficient incentives to maximize share value choose profitable investments over perquisites, and managers with insufficient incentives choose perquisites over profits. Resource cuts do not alter this outcome.

#### D. Jensen's First Free Cash Flow Hypothesis Reconsidered

Summarizing, except with high leverage, there is no reason to believe, as Jensen assumes, that shirking management has trouble raising funds from outside capital markets,<sup>15</sup> and with or without high debts, new investors monitor no more closely than existing investors. Except with high leverage, Jensen's assumption that management can renege upon any dividend policy implies that modest debt increases do not constrain managerial behavior. And except with high leverage (and its attendant default risk), cutting "free" resources could backfire if poorly motivated managers derive utility from unprofitable activities.

How much debt must a firm assume before management cannot raise outside funds? How much must it borrow before management cannot appropriate future dividends? And how much default risk must it incur before management focuses resources on profit maximization? There is no critical debt-equity ratio that suddenly makes outside capital markets inaccessible or all amenity consumption imprudent. And since agency costs rise along with debt-equity ratios, shareholders may not push for corner solutions. Once management faces a tangible default risk, the control benefits of additional leverage should rise more or

less continuously. As Figure 1 illustrates, we should then observe a balance between these marginal costs and benefits of debt (at Point A).<sup>16</sup>

As such, it may be tempting simply to patch up Jensen's first free cash model. If his framework generalizes beyond free cash, so be it. We could also downplay the enhanced monitoring role Jensen assigns to outside capital markets without dismissing their importance. When a firm has sufficient debt, outside investors, unlike their established counterparts, can still make it difficult for managers to raise new funds. Finally, even a poorly motivated manager faced with a binding resource constraint may not cut profitable expenditures if the firm also faces a tangible threat of bankruptcy.<sup>17</sup>

Yet two problems remain. First, even when firms have high debt, long-term maturities involving no looming obligations to repay principal can give management considerable discretion to intertemporally shift cash flows or cut expenditures on profitable projects with distant payoffs. They can then go on consuming amenities while postponing much default risk beyond their time horizons.

Second, and more problematic, firms can often (and perhaps typically) capture most of the control benefits of debt very quickly. If the flow of benefits is high initially but then subsides as the restructuring proceeds, then equating the marginal costs and benefits of debt over time implies a program of quick repayment. In Figure 1, if debt's control benefits soon decline (to the dotted line), then subsequently equating costs and benefits (Point B) yields a lower debt-equity ratio. Perhaps the ultimate flaw in the strategies espoused in Jensen's first model is that they are dominated by the strategies outlined in his second! As such, attention now turns to this second model.

### III. HIGH DEBTS AND QUICK REPAYMENT

Although Jensen does not emphasize scenarios involving quick debt repayment, on several occasions he makes statements like this (1986,p.328):

The debt created in a hostile takeover (or takeover defense) of a firm suffering from 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 section builds upon this description of events. Although it outlines no unique role for free cash, it argues that short-term debt in sufficient quantities constrains management's choice between profitable investments and amenities. These LBOs may need to eliminate their dividends, but only temporarily, and with principal repaid quickly, they can capture debt's control benefits without suffering the long run agency costs. In short, this model suffers from none of the problems outlined in the previous section. And in contrast to Jensen's description, here firms are not always overleveraged to crisis levels.<sup>18</sup>

#### A. Rapid Repayment with Perfectly Liquid Assets and Costless Capital Markets

Let  $V_0$  and  $V^*$ , respectively, denote the expected value of a firm's assets under the status quo and under a complete restructuring. Let  $V_{t,x}^*$  be a lower confidence interval on  $V^*$ . Specifically, with probability  $x$  the value of  $V^*$  could not drop below  $V_{t,x}^*$  within  $t$  days. Assume for now that all assets are perfectly liquid and that outside capital markets are costless.

If  $V_{1,1}^* > V_0$ , then management can commit to raise the firm's value by borrowing  $V_{1,1}^*$ , giving shareholders the proceeds, and setting a one day maturity. Management must then increase the firm's value to this level to avoid default at day's end. Of course, management could renege and instead try to roll over the debt. By construction, the firm has enough locked up collateral



to support such a refinancing.<sup>19</sup> Yet creditors can only unlock this value by liquidating assets, and if management breaks one promise to do so, they may attach little credibility to a second one.

Agency conflicts arise even here. First, management could declare a huge mid-day dividend that leaves nothing for creditors to collect. Second, management might take a large mid-day gamble with the proceeds of the liquidation. If the wager fails, creditors incur most of the costs, and if the wager pays off, shareholders keep all the winnings (Jensen and Meckling, 1976).<sup>20</sup> Third, if  $V^* - V_{1,1}^*$  is large, then management still has considerable room to shirk.

Yet the debt could restrict dividends for one day and identify specific assets as collateral. Once management liquidates these assets, it would have to set the funds aside. Risk-taking is also limited by the repayment schedule: if a gamble is not resolved in one day, the firm must either repay bondholders or turn over the wager, along with all of its downside and upside potential. Although  $V^* - V_{1,1}^*$  gives management room to shirk, as long as  $V_{1,1}^* > V_0$ , there are still gains to be made. Moreover, if there is some  $\epsilon$  close to one such that  $V_{1,\epsilon}^* \gg V_{1,1}^*$ , then in exchange for a small default risk, management could make a more significant commitment. As Myers (1977) explains, bankruptcy risk can discourage management from undertaking profitable projects in which shareholders finance the costs while bondholders appropriate some of the rewards. Yet here projects would be postponed by at most one day.

Finally, even where management has some room to sell assets enjoying the least appreciation from status quo values and to keep those with high amenity value, there are still control benefits. A smaller firm is less costly to monitor, and having sold off the "crown jewels," management enables wealth-constrained and risk-averse investors to assume larger ownership positions.

### B. Rapid Repayment with Illiquidity but Costless Outside Capital Markets

Suppose assets cannot be sold within one day, but that outside capital markets remain costless. Then management can still borrow  $V_{1,\epsilon}^*$  using a one day maturity. At day's end the proceeds of that day's sales repay some principal. Creditors then review the situation, and if satisfied with the progress, they roll over the remainder for another day. If outside capital markets are costless, then LBO architects should fully exploit their disciplinary benefits by forcing management to keep justifying resources under its control.

Next, suppose outside capital markets entail modest costs that make daily renewal too expensive. Management could opt for a longer maturity — say six months — and borrow  $V_{180,\epsilon}^*$ . The savings from less frequent outside review must be balanced against higher agency costs. If more can go wrong in 180 days than one, then  $V_{180,\epsilon}^* < V_{1,\epsilon}^*$ , so the firm must borrow less. Also, management has more risk-taking opportunities — to hold up creditors it can take any gamble that is substantially resolved within six months. And foregone profit opportunities are deferred for a full six months. Knowing this, creditors may push for stricter covenants, more secure collateral, or higher interest.

All else equal, still higher costs of using outside capital markets imply longer maturities and higher agency costs. The prospects for financial distress also take on greater significance: if assets prove less liquid than anticipated, then with the maturity date looming management must either raise cash quickly by selling assets for less than full value or go through a costly refinancing. In short, the optimal debt maturity depends, among other things, on the interaction between asset liquidities and the cost of outside capital markets. Attention now turns to a scenario under which a hypothetical LBO might be structured in the presence of both illiquidity and costly outside capital markets.

### C. High Debts and Rapid Repayment under Realistic Conditions

Suppose each appeal for outside capital costs  $C > 0$  and that assets are less than perfectly liquid. Then events might unfold as follows. The architects of a LBO identify all potential asset sales, and for each they produce conservative forecasts of the gain from sale, the time needed to sell it, and confidence limits on the gain and liquidity. The architects proceed cautiously, focusing only on assets that can be liquidated by time  $t_0$ . They determine a very low acceptable level of risk (represented by  $\epsilon$ ) and target enough assets to yield a total gain of  $G_0$ , where  $G_0$  solves

$$(5) \quad V_0 + G_0 = V_{t_0, \epsilon}^* - 2C.$$

In words, they look for a partially restructured firm with a value equal to the (nearly) worst-case scenario for the entire firm's expected liquidation value at time  $t_0$ . Let  $R_0$  denote the forecasted revenues.

Suppose the firm borrows  $V_{t_0, \epsilon}^* - 2C$  using a due date of  $t_0$ . By construction the firm has enough collateral to secure the debt, and dividend restrictions and a short maturity protect creditors against opportunism. If management works hard to liquidate assets, default risk is very low. At  $t_0$  the firm issues  $V_{t_0, \epsilon}^* - R_0 - 2C$  in new equity (or debt) and repays creditors.

This conservative approach rests on a variety of factors. By way of explanation, rewrite equation (5) as

$$(5') \quad G_0 = (V^* - V_0) - (V^* - V_{t_0, \epsilon}^*) - 2C.$$

For the LBO to be profitable ( $G_0 > 0$ ), the prospective gains from a complete restructuring ( $V^* - V_0$ ) must be large, even though the LBO has a more modest goal of a partial liquidation. The firm's assets serve as collateral, so a high liquidation value facilitates borrowing. Second, the chances of a marked

drop in asset values  $(V^* - V_{t_0, \epsilon}^*)$  must be remote. Since more can go wrong the longer the debt remains outstanding, it should mature quickly. Hence, the targeted assets must also be liquid, there must be several potential buyers,<sup>21</sup> and ideally the assets are implastic and easily valued by outsiders. Such hard assets do not lend themselves to excessive risk-taking (Alchian and Woodward, 1988). Third, the LBO's owners must be willing to accept temporary but draconian restrictions on payouts. Fourth, everyone must subscribe to the architects' forecasts. Finally, outside capital markets must not be too expensive.

Suppose the LBO architects cannot structure a conservative deal, or suppose the conservative approach leaves too many potential gains unexploited. What can be done? One frequently discussed option is to target more assets and issue more debt. These additional assets have smaller gains, or are less liquid, or involve more uncertainty than the original ones. Let  $\epsilon' < \epsilon$  denote the higher risk, let  $G_1 > G_0$  denote the estimated gains from this more ambitious plan, let  $V_0 + G_1 - V_{t_1, \epsilon'}^* - 2C$  be the size of the loan, where  $t_1 \geq t_0$  is the new maturity date. As before, management has a well-defined deadline and an explicit goal. If the newly targeted assets are nearly as liquid as the original ones and if the probability distribution on the firm's liquidation value has a thin lower tail, then this could remain a reasonably conservative LBO that yields more profits than the original with an insignificant increase in default risk and agency costs. In this event, the LBO architects might target even more assets until the marginal agency costs of debt equal the marginal control benefits.

Yet the LBO architects can also adjust maturities. Suppose they take their short but conservative maturities and shorten them further. What are the costs and benefits? Begin with the benefits. First, shorter maturities

give management less time to search out excessively risky ventures that gamble with lenders' money. Shorter maturities also reduce the number and type of wagers management can make, since much of the uncertainty surrounding them must be resolved prior to maturity. Second, shorter maturities reduce the damages when profitable projects are deferred. At maturity the firm must return bondholders' principal or cede control. Either way, shorter maturities mean that any agency conflict is more quickly resolved. More generally, shorter maturities give creditors faster recourse if management behaves opportunistically.<sup>22</sup>

Third, at some point the resources consumed by the restructuring increase with the time it takes to complete it. Up to a point, therefore, accelerating repayment lowers costs. Fourth, more rapid repayment reduces the risk that asset values could fall markedly prior to maturity (even though, as argued below, it also increases "illiquidity risk"). Often more can go wrong in two years than in one, and if so keeping maturities to one year reduces this risk.

Finally, an overly conservative strategy ignores assets with uncertain liquidities. Suppose two assets could each be sold for large gains with probability 80% within one year, but that otherwise they could not be sold within three years. A conservative approach might target neither asset for sale. But a more aggressive approach could target both assets but assume that only one would be sold. If the two events are independent, then there is a four percent chance that both divisions would remain unsold one year later. Given the potential gains, this risk may be acceptable.

Now consider the costs of accelerating repayment faster than the conservative timetable. First, holding managerial effort constant, shorter maturities mean fewer asset sales. Moving the maturity from two years to one, for example, means that all those assets with estimated liquidities between one and two

years must be excluded — unless, of course, management works harder because of the shorter maturity or has post-LBO incentives to follow through.<sup>23</sup> Second, up to a point accelerating repayment can economize on resource costs, but beyond this point quicker repayment requires more expenditures. Third, while a shorter maturity can lower the risk that the firm's collateral will depreciate to less than the debt's face value before creditors have a chance to reclaim their investments, it may raise the risk that the LBO could default from illiquidity. Even if management can react quickly enough to stave off default, the costs of financial distress (e.g., marketing assets too quickly and having to accept less than full value) may prove significant.

How does the cost of outside capital alter these costs and benefits? At one extreme, suppose some assets could prove less liquid than expected, but that as the maturity date approaches their liquidation value would likely remain unchanged. Suppose, too, that in this event management would be able to demonstrate to outsiders that the assets are worth as much as ever and that every effort had been made to dispose of them. Then presumably management could extend the maturity of this debt or simply roll it over. The damages would then be limited to the cost,  $C$ , of one additional appeal to outside capital markets. Alternately, with the selloff nearly complete, management could bring the firm public without exploiting the gains on these last few targeted assets. Under this scenario, very short maturities could be prudent.

At the other extreme, suppose  $C \gg 0$  and that illiquidity is highly correlated with falling asset values. If outsiders cannot easily monitor events, they may infer from the lack of tangible progress that the assets have depreciated in value or that management is incompetent. Workers, suppliers, and customers may come to similar conclusions, and refuse to make specific invest-

ments in the firm or initiate a run to cash in claims outstanding. The LBO may then run into more trouble. And if management and the LBO sponsors are well-informed relative to outsiders, these difficulties could be exacerbated by adverse selection (e.g., outsiders may wonder about the timing of the new issue, and why it takes the form of debt rather than equity). Under these scenarios, bankruptcy and financial distress costs could obviously be quite damaging. If, ex ante, the LBO architects fear this outcome, then all else equal they should extend the debt's maturity to build in a greater margin for error.<sup>24</sup>

There are various ways to finesse these problems. For example, the LBO architects could arrange several maturity dates, repaying some of the debt in six months, more in a year, and so on, in order to give management a series of deadlines and to force it to disgorge the proceeds of early asset sales as they are realized. Or the architects could set a conservative maturity but insert a call provision that provides management with the option and the incentive to retire debt earlier, if possible. Other possibilities abound.

#### D. Other Motivational and Disciplinary Forces

The discussion thus far assumes that management's sole motivation comes through the threat of bankruptcy, and that it tries only to meet its target: if the LBO borrows  $V_0 + G_1$ , then management aims for exactly  $G_1$  in gains. But with both gains and liquidities uncertain, management will may aim for  $G_2 > G_1$  in gains to provide some of its own margin for error. Recognizing this, the LBO architects may scale back their borrowing to some extent, even if management is not risk averse (and especially if it is) and even if bankruptcy is indeed the sole source of managerial discipline. As is well known, LBO architects also employ various other tools to mitigate shareholder-manager-bondholder conflicts. These include strip financing and institutional arrangements to render

costly, formal bankruptcy proceedings less necessary, as well as pay-for-performance contracts, and large equity positions and reputational investments by managers, directors, and LBO partners. They also include contractual limits on the use of cash and on cross-subsidization among business units.

#### E. The Success of Early LBOs with Less Debt

Even where bankruptcy risk is the sole force motivating management, the very conservative LBO strategy described earlier can yield high returns without overleveraging the firm to "crisis" levels. With the introduction of other incentives, still higher returns with even less debt seem plausible. In short, this model helps to explain how LBOs in the early 1980s could have profited without the high debt-equity ratios and default rates of later LBOs.

Indeed, where  $C \gg 0$  there is an even more conservative strategy. Suppose the LBO firm borrows  $R_0 < V_0$  of short-term debt and gives it to shareholders. Suppose, too, that the firm publicly identifies the targeted assets. Then ex post management has three options: i) sell the targeted assets; ii) sell other assets; or iii) sell no assets and at maturity roll over the debt or replace it with equity. With less than  $V_0$  in debt, outside investors may be unable to discipline management as before. At the same time, though, the high cost of returning to these outside capital markets means that management cannot easily take the third option. Moreover, in contrast to the ordinary operations of the firm, which may be difficult for investors to monitor, here it may be relatively easy to observe shirking, since both the list of targeted assets and the timetable for liquidating them is fully articulated. If management shirks, then the only issue is whether or not informed, incumbent claimants can respond. If LBO sponsors are willing to put up substantial equity stakes (which become more substantial when the firm repurchases other shareholders' claims); if the



sponsors have super voting rights; or if other measures are taken to shore up control, then it is plausible — in some circumstances, at least — that this even more conservative strategy could succeed.

#### F. Summary

This section elaborates on the merits of quick debt repayment by arguing that managers do not merely react ex post to the crisis atmosphere thrust upon them by an overleveraged firm. Ex ante debt levels and repayment schedules are set only after thorough research, and after a specific plan has been carefully articulated. While those who structure the financing seek to push management to its limits, they also want to ensure that the timetable is feasible and leaves some leeway for unavoidable mistakes and misfortune. Ex post management works fast and hard, but benefits from a detailed road map that includes instructions for getting the firm back on track after wrong turns. There may be large returns to the permanently high debt advocated by Jensen, but where agency problems can be addressed through quick and well-conceived measures — most notably asset sales, plant closings, and then an initial public offering — firms can often reach the same ends and earn still higher returns by keeping these high debts no longer than necessary.

#### IV. CONCLUSIONS

This paper shows how the agency conflict surrounding excess free cash flow extends to other discretionary resources. Jensen's framework, in other words, is more general than his nearly exclusive emphasis on free cash suggests. Because this agency problem is not resource-specific, measures targeted at the agency costs of a specific resource will not work — for example, if a firm issues debt only in quantities sufficient to sop up free cash, management may substitute other resources and continue shirking. Since Jensen assumes that

dividends are among the firm's substitutable resources, shareholders may also find it necessary to force the firm to borrow heavily against future profits and distribute an extraordinary dividend up front. In short, given his assumptions, Jensen's antidote for managerial shirking requires very high doses of debt; and if this debt is long term, management may still have considerable discretion to substitute resources intertemporally and continue shirking.

This paper drops the specific references to free cash. It also shuns the commonly held perception that LBOs are generic transactions that pile on debt until the affected firms are "overleveraged" to crisis levels. Instead, LBOs involve complex links between debt quantities and maturities that depend upon numerous considerations, including asset liquidities and the LBO firms' costs of returning to outside capital markets. In many cases, especially early on, LBOs maximized profits by using somewhat less debt and by scheduling fewer asset sales in order to set the short maturities. These LBOs captured the control benefits of debt very quickly and then paid down their debts. Perhaps unfortunately, these early, successful LBOs attracted imitators even as they depleted the pool of the most desirable LBO candidates; and so many subsequent LBOs took more aggressive measures, targeting more assets for sale, taking on more debt, and assuming greater default risk. Although many of these transactions appear ill-conceived in hindsight, a strong case can be made that more conservative LBOs were an important and productive organizational innovation.

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## ENDNOTES

<sup>1</sup>See also, Grossman and Hart (1982).

<sup>2</sup>And as Alchian and Woodward (1988) point out, while cash is the firm's most discretionary resources (they use the term "plastic"), once identified it is also among the easiest to monitor.

<sup>3</sup>This example is inspired by Pacific Lumber, discussed by Bhagat, Shleifer and Vishny (1990).

<sup>4</sup>He cites many contributing factors in various publications. He argues most emphatically in Jensen (1989) and backs down a bit in Jensen (1991). The factors include strip financing, the higher going-concern value of LBOs, and institutional arrangements to render costly, formal bankruptcy proceedings unnecessary. He also describes measures that lower the probability of default: pay-for-performance; large equity positions and reputational investments by managers, directors, and LBO partners; more active investors; and strict contractual limits on the use of cash and on cross-subsidization among business units. Finally, he finds benefits when bankruptcy occurs: "...the violation of debt covenants creates a board-level crisis that brings new actors onto the scene, motivates a fresh review of top management and strategy, and accelerates response (1989, p.67)." Of course, Jensen does not argue that the agency costs of debt disappear. The firm still chooses the debt-equity ratio that equates the marginal costs and benefits of debt (Jensen, 1988, p.323), but with lower costs the profit-maximizing outcome involves more debt than in the past.

<sup>5</sup>See Jensen, Kaplan, and Stiglitz (1989). For similar views from other work, see also Kaplan (1989b) and Marais, Schipper, and Smith (1989).

<sup>6</sup>Of course, there is no consensus regarding the tradeoff between wealth gains and redistribution. For evidence of redistribution, see Asquith and Wizman (1990), Kaplan (1989), and Bhagat, Shleifer, and Vishny (1990).

<sup>7</sup>Many authors have documented cutbacks in capital expenditures, and this could indicate foregone investments in profitable ventures. However, Jensen would attribute these cutbacks to reductions in free cash that make it more difficult for management to pursue growth at the expense of profits (see also, Kaplan (1989a)).

<sup>8</sup>See also, (1988, p.323); "Consider a hypothetical world in which companies distribute excess cash to shareholders and then must convince the capital markets to supply funds as sound economic projects arise. Shareholders are at a great advantage in this world, where management's plans are subject to enhanced monitoring by the capital markets. Wall Street's analytical, due diligence, and pricing disciplines give shareholders more power to quash wasteful projects." For similar arguments, see Rozeff (1982) and Easterbrook (1984).

<sup>9</sup>Jensen himself places considerable faith in the efficient markets hypothesis (e.g., 1988, p.319-320), and more specifically argues that takeovers do not seem motivated by any inability of incumbent claimants to price their

claims accurately. And as erstwhile junk bond king Michael Milken (1992) points out, this monitoring became even more intense in the 1980s as many new firms gained access to Wall Street's credit markets:

Trading bonds you get a better sense of credit markets than any bank officer can get. They make a loan and every six months or so they check the books to see how it's doing. ... When you trade bonds, you reevaluate every day, not every six months. Sitting on a trading desk, if you issued a security on Jan. 5 and on Jan. 11 you suddenly start to see more sellers than buyers, you better find out if something is wrong. Is there something going on in this company we don't know about? If you're trading securities, you're constantly reevaluating individual credits and the credit markets. You're making a new loan every day.

<sup>10</sup>Moreover, the firm must somehow also foreclose managerial recourse to new equity sales, stock-financed acquisitions, and internal sources of "quasi debt" finance. For example, high debts designed to prevent management from purchasing new plant or equipment in negative NPV investments may not be effective if management can lease these resources instead.

<sup>11</sup>Jensen (1989, p.67): "'Permanent' dividend increases or multiyear share repurchase programs ... involve no contractual commitments by managers to owners. It is easy for managers to cut dividends or scale back share repurchases."

<sup>12</sup>Stulz (1990), for example, models a manager who derives perquisites from investment and hence invests as much as possible, but always in rank order of profitability. In spite of this assumption, and even though cash is the sole discretionary resource (i.e., there is no option to substitute other resources to maintain unprofitable projects), Stulz's results resemble those derived here. In particular, cutting cash can exacerbate the agency conflict.

<sup>13</sup>The term "amenities" is used here in the broadest possible sense to include any argument other than wealth that could enter into managerial utility. It could include, as in the hypothetical, the satisfaction of following environmentally sound harvesting of trees. It could also include on-the-job perks, investment projects that expand the firm's size at the expense of profits, largesse toward employees, and so forth.

<sup>14</sup>This intuition is quite general. Consider a college student with a generous allowance from his parents. He buys all the required texts, study aids, and so forth, just as the parents had hoped, but then invests what remains in long distance conversations with his girlfriend. Concerned that their son spends too much of "their" money on the phone, the parents consider reducing his budget. Yet unless they can monitor his expenditures (e.g., by issuing credit and phone cards instead of cash — with the bills forwarded home), he may cut study expenditures without markedly reducing his phone bill.

<sup>15</sup>At one point, Jensen (1989, p.322) concedes this point: "financial flexibility in the form of free cash flow, large cash balances, and unused borrowing power provides managers with greater discretion over resources that is often not used in the shareholders' interests. [Emphasis added.]"



LBO's Marginal  
Benefits/Costs  
Per Unit of Time

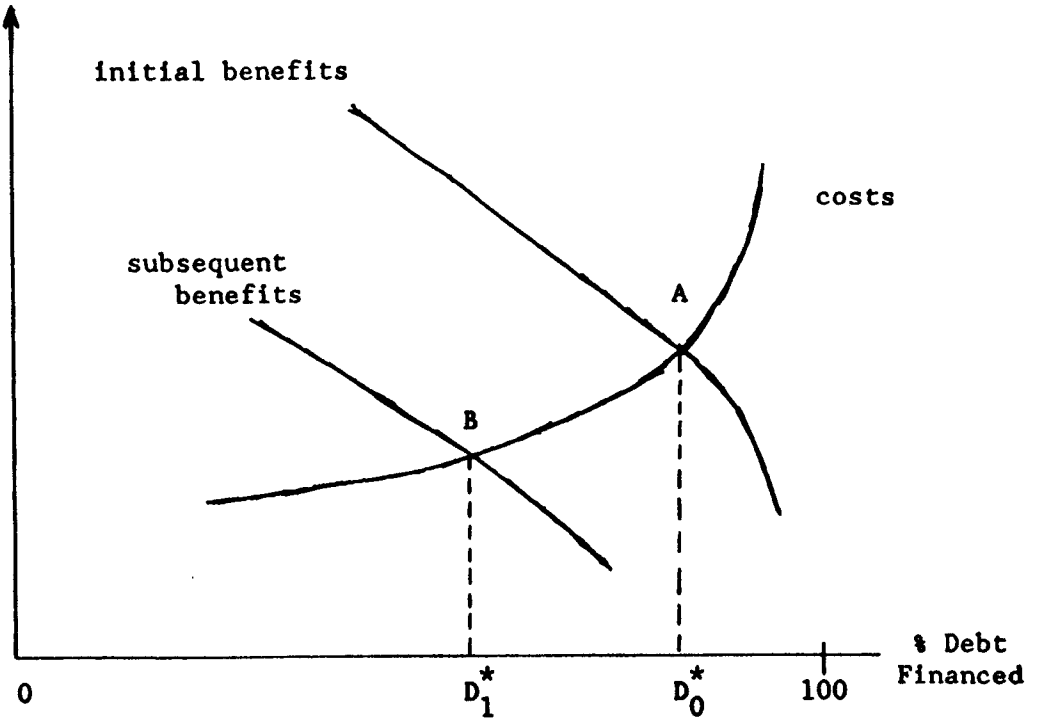


FIGURE 1