LBOs and Taxes: No One to Blame But Ourselves?

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Abstract

Our tax structure provides enormous incentives to increase leverage by substituting debt for equity. LBOs do exactly this in the process of acquisition. We show in an analysis of the RJR-Nabisco LBO that more than 80% of the "value added" is the result of the tax benefits of leverage. Thus LBOs represent mostly value transferred rather than value added.

We identify some dangers associated with the leveraging of corporate America. As firms respond (through LBOs or simply capital restructuring) to our current tax incentives, the economy will become more sensitive to economic downturns.

The 1986 Tax Reform Act increased the tax benefits to LBOs and increased leverage. We quantify this effect, and examine some appropriate tax changes which would restore tax neutrality to the leveraging decision. With such changes, the tax incentive for LBOs and leverage will disappear and buyouts will be profitable only for real rather than tax-avoidance reasons.

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LBOs AND TAXES\textsuperscript{1}

The growth of the leveraged buyout (LBO) market to $125 billion per year has engendered considerable controversy. Two schools of thought have developed. Advocates see the movement as realizing the benefits of a competitive market for corporate management. Critics see the movement as financial legerdemain which leads to short-run managerial decisions and economic dislocations.

LBO proponents stress increased efficiency of production, tighter financial planning, and the ousting of managers grown "fat" by lack of competitive pressures. Recognizing these great potential improvements, takeover specialists have been willing to bid large premiums for their targets, thereby benefiting current shareholders.\textsuperscript{2}

LBO critics stress the fact that little real value is being added. Takeover specialists spot firms the market has underpriced, and profit (even after paying high premiums) by selling off or otherwise exploiting the firms they acquire. Critics often claim that workers suffer from displacements and that the pressure to service large interest payments leads to short-sighted management

\textsuperscript{1} The author thanks Suei-Fen Chiu and Mei-Tsuey Hwang for help in the RJR-Nabisco case study. Their results are detailed in their MBA thesis, Chiu and Hwang [1989].

\textsuperscript{2} See, for example, Bradley, Desai and Kim [1988] and Jensen [1986].
policies.\textsuperscript{3}  

We offer a third perspective. Like the first, it presumes a competitive market with no systematic underpricing. But like the second, it suggests that little real value is added. How, then, can takeover specialists offer large premiums to current owners if markets don't underprice, but relatively little of value is added?

The answer lies in the fact that there is a third participant in every LBO: the U.S. Internal Revenue Service. The buyouts we have been witnessing aren't just buyouts, they're buyouts financed by debt. And relative to equity, debt has some very significant tax advantages. We shall show that these tax advantages became even more important after the 1986 Tax Reform Act.

An analysis of the RJR-Nabisco LBO shows that tax advantages from leverage alone can explain more than 80 percent of the premium offered to shareholders. In short, government tax policies provide the primary motivation for LBOs.\textsuperscript{4} Most of the "value created" comes directly from government coffers, and therefore represents value transferred rather than value added. The high premiums bid in leveraged buyouts are largely paid for by US taxpayers.

\textsuperscript{3} For a review of arguments pro and con, see Newport [1989].

\textsuperscript{4} A statistical study by Schipper and Smith [1986] also suggests that tax effects are significant in LBOs. They find that tax effects explain much but not all of LBO premiums. However, their analysis rests on LBOs completed prior to the 1986 tax reform.
Tax advantages will induce firms to increase leverage even without takeovers. We address the real economic costs which result from the leveraging of corporate America. Finally, we suggest some tax changes that create a neutral valuation of debt versus equity financing. Such changes will eliminate a principal motivation for LBOs, and lead to a significantly healthier economy.

II. The Economics of LBO's: A Primer on Leverage

An LBO involves a corporation (often formed just to complete the buyout) utilizing debt to purchase equity of the target corporation. Since this equity is then retired, the net result is that the firm is more levered--it has a higher debt/equity ratio than before.

Returns to the former equity holders were not tax deductible. But under our current corporation tax code, returns to the debt holders which replace the old equity holders are deductible. This reduces taxes that the corporation otherwise would pay--often by enormous amounts.

Just how large is the tax benefit? Does it explain most of the premiums bid for target firms? We must examine a typical "deal" to discover the magnitude of tax benefits.
III. An Example: The RJR-Nabisco LBO.

The largest LBO to date, RJR-Nabisco, is typical (except for size) of the standard LBO arrangement. An acquiring group offered a total value of about $22.5 billion in cash and securities to purchase the approximately 223.5 million shares of RJR-Nabisco that were outstanding.⁵

Since the stock of RJR-Nabisco was selling for approximately $56.20 per share immediately before the first offer put the stock "in play", the premium being offered to current shareholders was a startling $9.9 billion.⁶

The value of the newly issued debt was about $20.0 billion.⁷ Annual interest rate expenses on the debt issued were estimated to

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⁵ The offer was a in two stages. First, the acquiring group offered $109 cash per share for 165 million shares. Two months later, a combination of securities with value approximately $80 per share was exchanged for the remaining 58.5 million shares. The net present value of the package approximated $22.5 billion; see Chiu and Hwang [1989].

⁶ The calculation is as follows: prior to being put in play, the total stock value was $56.20/share x 223.5 million shares = $12.6 billion. Cash and securities worth $22.5 billion were paid to retire these shares, implying a $9.9 billion premium.

⁷ Equity amounted to another $1.5 billion, and preferred stock another $3.5 - $4.0 billion in market value. Note common stock represents about 5% of total firm value.
be 13%, or approximately $2.6 billion per year. How much will this save in taxes?

RJR-Nabisco data indicated a net tax rate in 1988 of 40%. An increment of $2.6 billion in annual interest payments would therefore reduce income taxes by about $1.04 billion per year! This is of course a saving each and every year. The net present value of this stream of savings is larger: at a 13% discount rate (the same as the rate paid on debt)\(^8\) we calculate

\[
\text{Net Present Value of Tax Savings} = \$8.0 \text{ billion}.\(^9\)
\]

Thus 81% of the premium paid for RJR-Nabisco can be explained by the tax benefits following from greater leverage. The $8 billion is the value of tax savings by RJR-Nabisco. But it is also the

\(^8\) Since net income (before interest and taxes) is a random variable in future years, there is a possibility that the full amount of interest payments will not serve to reduce taxes— since losses can only be carried forward. Recognizing the risk that profits might not be as large as interest payments, we discount by the rate paid on the debt—a rate which also reflects the possibility that profits might not be sufficient to pay debtholders.

\(^9\) It should be noted that RJR-Nabisco plans to sell off certain divisions to reduce debt. This makes good sense, since the expected income of RJR is somewhat less than the $3 billion in interest payments, implying that some of the tax shelter is lost. But doesn't it imply lower interest in the future, and thus a lesser amount of tax savings? Not necessarily, since the tax shelter can be effectively be sold if the divisions being sold are themselves bought with debt. Thus, the reduced tax writeoffs from a lower debt service are matched by an increased value in the assets sold, generated by the transferred tax shelter.
value of taxes lost by the government. For all the lip service paid to increasing efficiency, etc., the deal is based almost entirely on tax saving.

IV. Leverage and Taxes: The Effect of the 1986 Tax Reform Act

The urge to substitute debt for equity is not unnatural. Just as private taxpayers seek all legitimate deductions, so do firms. And the interest payment deduction is a big one. Our tax code provides a powerful incentive for firms to become highly levered.

This raises an important question: since debt service has been tax deductible for decades, why didn't firms become levered long ago--why the current LBO frenzy? There seem to be three reasons:

> Organized and efficient markets for highly levered debt instruments ("junk bonds") were developed only in the last few years.

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10 There may be some recapture of lost taxes due to an acceleration of capital gains taxes paid upon completion of the LBO. This does not affect the 81% ratio, which measures the ratio of tax savings to bid premium as seen from within the firm.

11 Chiu and Hwang (1989) estimate another $0.5 billion tax saving from inventory writeup, bringing total tax savings to $8.5 billion, or 86% of the premium paid. Lower bond values following the merger (which benefit shareholders accordingly) represent another 3% of value, bringing the total to almost 90% of premium.

12 This leads to a chicken-and-egg problem. Did leverage become possible only when the junk bond market developed, or did the junk bond market develop only when leverage became highly desired? Both arguments probably deserve support: the demand and
Managers do not like leverage, even if it benefits their shareholders. Leverage increases the chance of bankruptcy, and therefore the chance that managers may lose their jobs.

The 1986 tax code changes significantly increased the tax advantages of debt. The increase in LBO activity reflects this greater advantage.

How did the revised tax code increase the incentive to lever? At first glance one might think the 1986 changes would have reduced the incentive, since corporate tax rates were cut from 46% to 34% --thereby cutting the tax savings from interest deductions. In addition, the new tax law reduced the opportunity to benefit from asset writeups.

But the 1986 Tax Reform Act also changed taxation of debt and equity returns at the personal level. Prior to the tax code change, individuals paid a maximum of 20% tax on capital gains, but as much as 50% on interest and dividends (which were treated as ordinary income). Thus, while a firm saved taxes by issuing debt at the corporate level, it had to pay higher interest to offset the tax disadvantage of debt at the personal level.

supply undoubtedly developed simultaneously. But surely government tax policy bears a very major role in creating the junk bond market.
Miller [1977] provides a handy formula for estimating the increase in firm value which would result from replacing $1 of equity with $1 of debt:

(1) \text{Value Increase per $1 Increased Leverage:}

\[ \Delta = (1 - (1-\tau)(1-\tau_e)/(1-\tau_i)) \]

where \( \tau \) is the corporate tax rate (expressed as a fraction), and \( \tau_e \) and \( \tau_i \) are the personal tax rates (expressed as fractions) on equity returns and interest receipts, respectively. If personal tax rates on equity and interest are equal, then we have as a special case the original Modigliani and Miller [1958] result that \( \Delta = \tau \).

Define \( T = (1-\tau) \), \( T_e = (1-\tau_e) \), and \( T_i = (1-\tau_i) \). The T's are the retention rates of corporate and personal income after taxes. We can simplify (1) to

(1') \[ \Delta = [1 - T(T_e/T_i)] \]

\[ \text{---} \]

\[ ^{13} \text{This expression assumes that taxable investors (rather than tax-exempt investors) on the margin set price relationships between securities. If } \tau_e = \tau_i, \text{ as it does currently, it doesn't matter which of the two groups set relative prices.} \]
Unfortunately, equation (1) or (1') isn't quite descriptive enough.

Stock returns come from two different sources which may be taxed at different rates: dividends and capital gains. Prior to 1986, dividends were taxed at ordinary income rates ($\tau_d$) and capital gains at a preferential rate ($\tau_e$). If we let $f$ represent the fraction of total equity returns which are received as dividends (implying the remaining fraction $1-f$ is received as capital gains), then (1') can be extended to

$$
\Delta = (1 - T[fT_d + (1-f)T_e]/T_d) \quad .^{14}
$$

It is easily seen that if $f = 0$ (i.e. the firm pays no dividends), then (2) is the same as (1'). If $f = 1$ (i.e. the firm pays large dividends and no capital gains) then (2) becomes the original Modigliani-Miller result, $\Delta = 1-T = \tau$.

The latter result is intuitive: if a stock pays a high dividend with no expected capital gains, it will not benefit from favorable capital gains tax treatment and the original Modigliani-Miller result will hold.

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$^{14}$ These and subsequent results come from simple arbitrage arguments, in the spirit of the original Modigliani-Miller analysis. They are valid for risky as well as riskless debt, as long as the liquidation costs of bankruptcy are relatively small.
Nothing in this analysis requires a takeover to realize the gains from increased leverage. But it may well be that current managers are reluctant to increase leverage for the reasons discussed above. Takeovers may be necessary to unseat an incumbent management and thereby realize increased value through increased leverage.

Interestingly, current management can use increased leverage (e.g. through a stock buy-back program financed by debt) as an anti-takeover strategy. We see why this is an effective strategy: by realizing the gains to increased leverage, current management preempts the prime source of a raider's ability to bid a premium.

Even without the direct threat of takeovers, we may expect firms to increase their leverage through time. This is because the gains to shareholders are so demonstrable. When the firm next door realizes a 52% increase in stock value due to a stock repurchase program, it's going to be hard to resist the pressure to do the same. Shareholders will demand that firms lever, even when no takeover is imminent.\(^\text{19}\)

\(^{19}\) This analysis suggests that firms with underutilized debt capacity are prime candidates for restructuring (or for an LBO). Indeed, the description of the ideal LBO target ("stable revenues, low required investments, liquid assets, and large free cash flow relative to debt service") is exactly the description of a firm with underutilized debt capacity.
approximation for $f$ of about 0.25.

Putting these numbers into (2), we compute

$$\Delta(\text{pre'86}) = 0.22$$

$$\Delta(\text{post'86}) = 0.34.$$  

That is, each extra dollar of leverage (debt replacing equity) led to a $.22 increase in the value of the firm prior to 1986. In the post-1986 tax environment, each extra dollar of leverage leads to a $.34 increase in value--more than 50% greater, despite the drop in the corporate tax rate. In short, the tax revision of 1986 created a more powerful impetus toward increased leverage.\(^{17}\)

The above numbers also imply the maximum benefit available from increased leverage. If 100% of outstanding equity is replaced by debt, then a 52% premium over current equity price can be paid through tax savings alone.\(^{18}\)

\(^{17}\) It has been suggested that, because capital gains can be postponed, the effective rate $\tau_e$ is less than stated. In the extreme case where capital gains can be avoided entirely, the above calculations become $\Delta(\text{pre'86}) = 0.055$; $\Delta(\text{post'86}) = 0.148$. Although smaller in absolute value, the impetus to leverage after the tax change is almost three times the impetus before.

\(^{18}\) The result is determined by $\left[1/(1 - \Delta) - 1\right]$, which is 0.52 when $\Delta = .34$. 

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Table I gives the approximations for tax rates before and after the 1986 tax changes:  

<table>
<thead>
<tr>
<th></th>
<th>Pre 1986</th>
<th>Post 1986</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate Tax Rate ($t_c$)</td>
<td>.46</td>
<td>.34</td>
</tr>
<tr>
<td>Personal Tax (Capital Gains $t_c$)</td>
<td>.20</td>
<td>.28</td>
</tr>
<tr>
<td>Personal Tax (Interest, Dividends $t_f$)</td>
<td>.50</td>
<td>.28</td>
</tr>
</tbody>
</table>

Dividends on the S&P 500 stocks have fluctuated between about 3.2% and 4% in the last few years. Total expected equity returns may have fluctuated between about 13% and 17%. This suggests a first

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15 These numbers are approximate, and reflect maximum marginal rates. We ignore state taxes, although for some investors these may be quite important. Note the RJR tax rate was 40%, not 34%.

16 Historically, stock returns (capital gains plus dividends) have averaged about 6-8% above the Treasury bill rate. Since in the last 3 years Tbill rates have ranged from 7 to 9%, we find a potential range of 13 - 17% for expected equity returns.
V. The Real Cost of Increased Leverage

Should we care whether firms are levered? After all, taxes could be raised elsewhere to compensate for lost revenues. Perhaps LBOs simply create tax transfers rather than real costs.

Unfortunately this is not the case. The potential costs of a highly levered corporate America are real, and are severe. A deeply indebted economy is a fragile economy, subject to collapse in any substantial downturn of business. Anyone who has studied the Great Depression knows that bankruptcies create economic havoc and real loss. We could risk a similar wave of bankruptcies with a much smaller economic decline, simply because the of the enormous burden of high interest payments. And if floating rate debt has been used, a sharp rise in interest rates also could create distress.²⁰

It is true that current debt/equity ratios aren't excessive, either by historical or international standards. But the increase in this ratio for LBOs is extreme. It is not unusual for an LBO to raise debt/equity ratios from numbers between 0.5 and 2 to numbers between 10 and 20. If many firms follow suit, debt/equity ratios will become extreme by both historical and international standards.

²⁰ Many "junk bond" financing packages involve floating rate debt. Often this risk is passed through to banks through interest rate caps or collars. This simply moves the economic risks one level back.
VI. Solving the Problem

The problem is not poor management, nor vicious raiders, nor an inefficient stock market. The problem is ourselves—as reflected in a tax policy which provides strong private incentives to take actions which are eventually costly to the public.

The detrimental incentives which current tax laws create are hardly unprecedented. In seventeenth-century Holland, merchant ships were constructed with tiny decks to avoid shipping taxes based on deck area—even though lives were lost because such ships were awkward to sail. In seventeenth- and eighteenth-century England and its American colonies, houses were built with few windows for a tax avoidance. And the windmills which dot certain windy passes in California already are being considered monuments to tax policies.

But the potential costs of excessive leverage are far greater than any of these examples.

As discussed, the root of the leverage problem is an asymmetric tax treatment of two kinds of financing: debt and equity. Eliminate the discrepancy, and we eliminate the tax incentive to replace equity with debt. We also would also reduce the size of the LBO movement, since we have seen the tax incentive provides 80% or more of the value of a typical LBO.
How can we eliminate the tax incentives for debt financing? There are a number of ways. We can analyze these by a slight modification of formula (2) above. The previous formula was derived on the assumption that dividends are not exempt from corporate taxes.

Consider changing the tax rules, with a fraction \( g \) of dividends excluded from corporate taxes. Then it is easy to show that the value advantage \( \Delta \) resulting from substituting a dollar of debt for a dollar of equity becomes

\[
(3) \quad \Delta^* = \frac{1 - T[fT_i + (1-f)T_e]}{(1-fgT)T_i}
\]

This differs from our earlier formula (2) by the divisor \((1-fgT)\). If \( g = 0 \), and no dividends are excludable, we have the same result as before. (As we also will if \( f \) and/or \( \tau = 0 \)).

To eliminate the tax incentive for leverage, we require

\[
(4) \quad \Delta^* = 0.
\]

Let us start with the current environment where \( T_e = T_i \). It can be verified that for (4) to be satisfied, \( 1-fgT = T = 1-\tau \), or \( fg = 1 \).
Even if dividends were fully deductible \((g = 1)\), we would have tax neutrality only if \(f = 1\). Currently, \(f = .25\), so there is little hope of achieving tax neutrality through dividend deductions alone. With \(f = .25\), we can use (3) to compute \(\Delta^* = .28\). On the other hand, tax deductibility of dividends might lead to \(f\) increasing. If dividends doubled so \(f = .5\), then \(\Delta^* = .20\).

In sum, given current tax rates, tax neutrality towards leverage cannot be achieved simply by excluding dividends from corporate taxes. But a 20-40\% reduction in the value of leverage will be achieved.

Dividend exclusion alone cannot achieve tax neutrality is because dividends comprise only a fraction of total equity returns. All equity returns would have to be excludable at the corporate level. This would be difficult to implement since capital gains, the additional returns to equity, are random.

Recently the current administration has proposed that capital gains taxes should be lowered. The primary reason for preferential capital gains treatment is increased investment. However, there will be a secondary benefit: the incentive to leverage will be reduced.

Table II summarizes our results:
<table>
<thead>
<tr>
<th>Capital gain rate</th>
<th>Dividend Deduction</th>
<th>$\Delta^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td>28%</td>
<td>No</td>
<td>.34</td>
</tr>
<tr>
<td>28%</td>
<td>Yes</td>
<td>.28</td>
</tr>
<tr>
<td>15%</td>
<td>No</td>
<td>.25</td>
</tr>
<tr>
<td>15%</td>
<td>Yes</td>
<td>.18</td>
</tr>
<tr>
<td>0%</td>
<td>No</td>
<td>.15</td>
</tr>
<tr>
<td>0%</td>
<td>Yes</td>
<td>.07</td>
</tr>
</tbody>
</table>

Observe that even if capital gains taxes fall to zero, the tax incentive will not be completely eliminated—even when dividends are deductible from corporate taxes. Also note that $\Delta^*$ will be lower if $f$, the dividend payout ratio, rises above 0.25. This is more likely when the dividend deduction is allowed. But absenting this,

Complete tax neutrality toward leverage will require a lessening of the corporate tax rate, a rise in the ordinary income tax rate, and/or a disallowance of interest deductibility.
Disallowing interest deductions would be not an attractive policy, since it would discourage investment.\textsuperscript{21}

Because personal taxes raise several times the revenue of corporate taxes, the following package would achieve approximate leverage neutrality and revenue neutrality:

- Corporate tax rate: 15%
- Personal tax rate: 32%
- Capital gains rate: 15%

If dividends were excluded from corporate taxes (and \( f \) remained at .25), then a corporate tax rate of 20\% in the figures above would also maintain approximate revenue and leverage neutrality.

\textbf{VII. Conclusions}

We have argued that most of the increased value associated with LBOs comes from the tax advantage of greater leverage. In the case of RJR-Nabisco, total tax benefits accounted for over 85\% of the

\textsuperscript{21} It has been suggested that interest deductions for buyouts only be disallowed. Almost surely such a restriction could be circumvented—e.g. the LBO goes through without leverage, and then the firm happens to restructure afterwards. Nor are arbitrary rules limiting deductibility on further leverage likely to be desirable, since they grandfather an advantage to firms which have already restructured.
premiums paid to shareholders. The bulk of shareholder gains came at the expense of the IRS, and were not created by prospects of better management or production efficiencies—although it is possible some such improvements may result.

Who's to blame? It's not the takeover specialists, who simply are responding to economic incentives. Rather, it's the corporate income tax code which allows returns to debt (i.e. interest payments) to be tax deductible, but not returns to equity.

Our tax code provides a powerful incentive to lever—not only in buyout situations but also for any firm which has low or moderate levels of debt. The changes in the 1986 tax law provided considerable extra incentive for financial restructuring. The simplest such restructuring is a buyback of stock, using internal funds or newly issued debt. A substantial premium—on the order of 52%—can be currently offered to shareholders in such a buyback, simply reflecting tax savings.

The leveraging of corporate America can bring real economic dangers. An economy deeply in debt is a fragile economy. Even relatively minor economic turndowns could have an important effect on the solvency of firms. And forced bankruptcies can have a major impact on economic activity, as we learned in the Great Depression.
How can we improve the situation? Because the cause is relatively simple, so are the possible solutions. Some straightforward changes in the tax code are suggested. Making dividend payments tax deductible (like interest payments) will reduce the distortion, although it is unlikely to eliminate it entirely.

Lower corporate taxes and/or lower capital gains taxes will further reduce the distortions we have created. So will increased ordinary income taxes and lesser deductibility for interest. Of course such changes must be analyzed for their revenue impacts and incentives in other economic decisions. We examined tax packages which were not radically different from today's tax rates, yet achieved approximate leverage neutrality and revenue neutrality.

If tax revisions lessen the private rewards to leverage, we can expect to see less financial restructuring and fewer LBOs. Mergers and acquisitions will continue to take place, but not for the wrong reasons. The financing packages of the takeovers which do occur will tend to be a better balance of debt and equity financing. And the economy will be healthier.
REFERENCES


