

Bureau of the Census Statistical Brief

Do LBO's Profit After R&D Cuts?

The leveraged buyout (LBO) wave of the 1980's engendered over 2,000 LBO's in the United States, involving companies with roughly \$250 billion in assets.

According to a study of companies that underwent an LBO during the interval 1981-87, estimates of the average decline in research and development (R&D) spending was between 29 and 47 percent — and yet, average profits improved.

The study uses data from the National Science Foundation Survey of R&D and the Quarterly Financial Report. Both data sets are collected by the Bureau of the Census.

LBO's increase debt financing.

The "leverage" in a "leveraged buyout" refers to a company's seeking external financing through increasing its debt (borrowed capital). The typical LBO rests upon 90 percent debt financing with only 10 percent equity (owned assets) after the buyout.

Therefore, the LBO can be defined as a firm in which—

- There is a substantial increase in debt.
- The firm's former owners have been bought out.
- The firm ceases to be public, that is, its securities are no longer publicly traded, and it generally stops issuing public reports.

After the buyout, performance improves.

In a detailed study of 72 R&D-performing LBO's, researchers found improved performance among the LBO firms 1 year after the buyout, with the ratio of cash flow to sales

increasing from 9.26 to 11.48 percent. The average cash flow to sales ratio for a comparison group of 3,329 R&D performing non-LBO's was 10.1 percent over the same period. (See figure 1.)

R&D expenditures are cut to meet LBO debt payments.

But what about the relationship between LBO's and R&D expenditures?

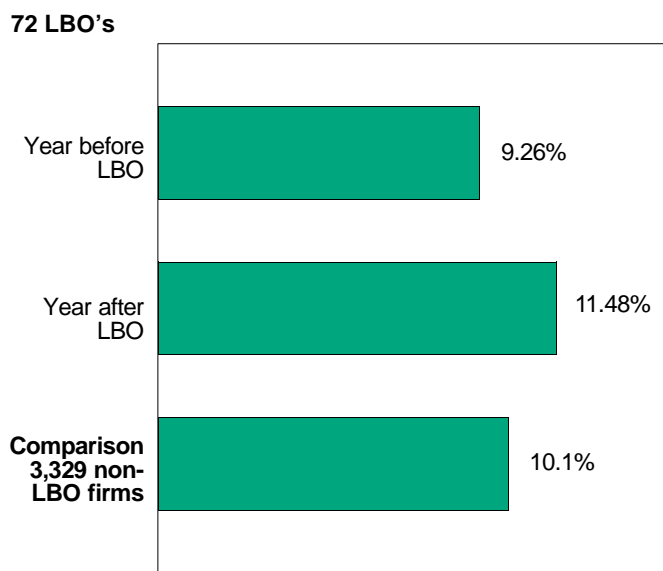
In the case of an LBO, once a firm increases its debt to equity ratio beyond a certain point, the firm's cash — over and above operating expenses — *must thenceforth be used to pay off the debt*. At a minimum, this means meeting the interest



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Figure 1.
LBO Performance Improvement*
As Measured by Cash Flow to Sales Ratios



* Before depreciation or taxes

payments — with the possibility that little cash may remain for R&D.

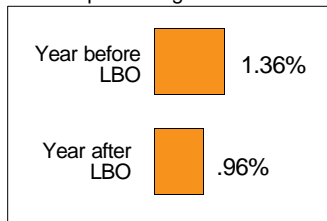
In analyzing the data, researchers found that, indeed, LBO's do cut R&D expenditures:

- For companies undergoing a buyout, the average decline in R&D expenditures was between 29 and 47 percent (but less so for large firms).

For the 72 R&D-performing firms that underwent leveraged buyouts, \$1.36 was spent on R&D per \$100 in sales the year before the buyout. The year *after* the buyout, the figure dropped by \$.40 — to \$.96 per \$100 in sales (figure 2). (And additional calculations, holding constant the specific industry of the LBO, showed a drop of \$.63 for R&D per \$100 in sales.)

Figure 2.
R&D Expenditures as Measured by R&D to Sales Ratios

72 R&D performing LBO firms



Cuts in R&D did not hurt LBO performance.

The cuts in R&D expenditures by LBO firms did not hurt profits, as shown in figure 1. While it is possible that R&D itself may be a long-lived asset that confers a competitive advantage for several years after it is cut, nevertheless — after 3 years — the relationship between LBO's and performance improvement for the 72 LBO's in this study was *still positive*, albeit somewhat diminished.

If this result seems surprising, it is because it belies the underlying — and perhaps, uncritical — assumption that R&D is bound to improve a company's productivity and profits. In fact, most studies do find a positive relationship between a firm's

R&D and its productivity.

However, one or more of the following factors may account for the improvement of the LBO firms' performance in the face of R&D cuts:

- LBO's generally *do not target high-tech firms*, that is, firms for which R&D is a relatively high percent of sales. Thus, for LBO firms, R&D is an uncritical element in their overall performance capabilities.
- Marginal R&D projects may have been cancelled.
- The R&D projects that *were* funded met qualifications for bank financing and produced profitable results.

Two theories vie to explain effect of LBO debt on R&D.

This study specifies the likely circumstances — i.e., the targeting of low-tech firms and increased scrutiny of R&D due to debt financing — under which R&D cuts do not harm company performance.

In this regard, the research helps resolve an issue posed by two apparently conflicting hypotheses within management theory:

- One hypothesis suggests that an increase in a firm's debt results in a decrease in R&D, and hence leads to reduced performance. *This view rests upon the assumption that all R&D is productive.*
- Another hypothesis maintains that an increase in a firm's debt results in a decrease in R&D, but not necessarily to the detri-

ment of the firm's performance.

This logic subscribes to the possibility that not all R&D may be productive, and that the "fat" or "pet projects" of management are well-trimmed by the exigency of having to apply cash flow to interest payments.

The present study demonstrates that each side in the debate has accurately captured certain predicted elements of LBO performance. Namely—

- LBO's lead to cuts in R&D, but
- R&D cuts do not automatically reduce a firm's performance.

In fact—

- R&D-performing LBO's improve profits despite R&D cuts.

*The full research report upon which this information is based contains complete descriptions of the data bases, the statistical methods used, and data limitations. See "LBO's, Debt and R&D Intensity," CES Report No. 93-3 by William F. Long and David J. Ravenscraft. A revised version of this study, using the same title as the research report, appeared in *Strategic Management Journal*, Vol. 14, pp. 119-135 (1993).*

This Brief is one of a series that presents information of current interest based upon research conducted at the Center for Economic Studies (CES) of the U.S. Census Bureau. The CES houses highly specialized longitudinal microdata files, undertakes research on important economic issues, and — with confidentiality protection — provides researcher access to the files. For further information, contact Robert H. McGuckin, 301-457-1848.

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