

What Do We Know about the Capital Structure of Privately Held Firms? Evidence from the Surveys of Small Business Finance

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Introduction

This paper seeks to shed light on what factors determine the capital structure at privately held firms. The capital structure decision—a fundamental issue facing financial managers—is, in its simplest form, the selection of a ratio of debt to equity for the firm. This seemingly simple decision about the best mixture of capital sources to be employed in financing the firm's operation and growth has confounded researchers since the seminal "capital structure irrelevance" theory of Modigliani and Miller (1958).

Existing empirical studies that test capital structure theories have relied on data from large corporations that issue complex financial securities for both debt and equity. Unresolved is the question of whether these theories are useful for understanding the capital structure of small privately held firms, which are primarily limited in their external borrowing to financial intermediaries such as banks, finance companies, and other business lending institutions.

Using data from a set of four nationally representative samples of small businesses surveyed for the Federal Reserve Board and the Small Business Administration over a 15-year period, this study contributes to the capital structure literature in at least three important ways.

First, it provides results from the first test of two major competing hypotheses—the pecking-order theory and the trade-off theory—based upon data from small privately held U.S. firms. This previously unaddressed segment of the market provides a new laboratory for reexamining the findings from prior studies that examine publicly traded firms. The focus on private firms eliminates the "noise" introduced by more complicated

securities, such as preferred stock and convertible bonds, reducing the errors-in-variable problems associated with empirical studies of capital structure at larger firms.

Second, the study provides new evidence of the degree of leverage used by small privately held companies and how their use of leverage differs from small publicly traded firms. Samples of data on small privately held firms are compared with data on small publicly traded firms taken from the Compustat database.

Third, the study presents new evidence on how the use of financial institutions influences capital structure, testing whether firms that obtain financial services from a larger pool of financial institutions are able to employ more leverage.

Overall Findings

This study tests predictions from the two competing theories, using descriptive statistics and then more sophisticated multivariate techniques to disentangle various forces influencing the capital structure decision. The results tend to favor the pecking-order theory over the trade-off theory. The analysis reveals that firm size is perhaps the most important determinant of leverage, with firm age also significant. Unprofitable and riskier firms consistently use greater leverage. These findings are consistent with predictions from the pecking-order theory.

Highlights

- The population of small businesses in the United States is not a homogeneous group. From 1987 through 2003, the median ratio of total loans to total assets ranged from a high of 25.1 percent in 1993 to a low of 7.4 percent in 2003,

while the median ratio of total liabilities to total assets ranged from a high of 47.4 percent in 1993 to a low of 27.5 percent in 2003. The distribution of these leverage ratios is heavily skewed by book-value insolvent firms—firms reporting that their liabilities exceeded their assets. This is evident from the mean leverage ratios, which are significantly larger in each year than the corresponding medians.

- Compared with small publicly traded firms, small privately held firms exhibit similar leverage ratios in aggregate, but not by industry—contradicting a key prediction of the trade-off theory, which posits “target leverage ratios” that differ across industrial classifications.
- Firm size is perhaps the most important determinant of leverage. Larger firms consistently use less leverage than smaller firms, whether size is measured by total assets, annual sales, or total employment.
- Firm age also is a significant determinant of leverage. Older firms use significantly less leverage than younger firms. This is consistent with the pecking-order theory but inconsistent with the trade-off theory.
- Profitability influences leverage. Splitting firms into profitable and unprofitable groups reveals that unprofitable firms consistently use greater leverage than profitable firms. This supports the pecking-order theory and goes against the trade-off theory.
- More liquid firms use less leverage, consistent with the notion from the pecking-order theory that financial slack is valuable and enables firms to avoid issuing debt.
- Riskier firms consistently use greater leverage, no matter how risk is measured. This contradicts the trade-off theory but is consistent with the pecking-order theory.
- Firms obtaining financial services from a larger number of bank and nonbank financial institutions employ more leverage.
- Multivariate results indicate no significant differences in capital structure attributable to race, ethnicity, or gender, if other firm characteristics are controlled for. These results are inconsistent with other studies that purport to find evidence of discrimination against minority-owned firms.

Methodology

This study utilized the Federal Reserve's Surveys of Small Business Finances (SSBF) from 1987,

1993, 1998, and 2003. The primary variables of interest are each firm's leverage ratio as measured by total liabilities divided by total assets or by total loans divided by total assets.

Explanatory variables include measures of firm size (annual sales, employment, and assets), profitability (return on assets, profitable/unprofitable), firm age, organizational form and owner demographics. The SSBFs are nationally representative samples of U.S. firms with fewer than 500 employees. In this study, the very small number of public firms in each survey and firms with annual sales over \$10 million are excluded.

This study uses both univariate and multivariate techniques to analyze the data. Univariate techniques refer to the presentation and comparison of simple descriptive statistics including the mean and median. Multivariate techniques refer to more sophisticated techniques that account for the complex relations among multiple variables. One such technique is weighted-least-squares regression analysis, which is used to account for the nonrandom sampling designs of the SSBFs.

This report was peer-reviewed consistent with Advocacy's data quality guidelines. More information on this process can be obtained by contacting the director of economic research by email at advocacy@sba.gov or by phone at (202) 205-6533.

Ordering Information

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