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## **UTILIZING DEBT AS A TAX BENEFIT: THE CAPITALIZATION OF U.S. CORPORATIONS AND OWNER SOPHISTICATION**

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### **KEYWORDS**

Capital structure, taxation, value of tax shields, financial policy, debt versus equity.

### **ABSTRACT**

In the United States, income earned by entities operating in corporate form is taxed twice: once at the corporate level when earned and again at the shareholder level when distributed in the form of a dividend. As a result, shareholders have long sought to mitigate the effect of this double taxation. Using data from the U.S. Federal Reserve's Survey of Small Business Finances for 2003, this study explores the extent to which shareholders of U.S. corporations make use of debt financing to reduce overall tax expense. By looking at firm owners with varying degrees of sophistication operating businesses in both corporate and pass-through form, we demonstrate that more sophisticated owners, particularly those with graduate degrees, make use of this tax planning method more often than others.

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## **1. INTRODUCTION**

Under the U.S. tax code, a "C" corporation is a separate and distinct taxpayer from its shareholders. Accordingly, earnings of a C corporation are taxed at the corporate level when earned and may be taxed again at the shareholder level when they are distributed to shareholders in the form of a dividend. This double taxation of the same income is a topic of much debate in the halls of Congress and other political circles. In contrast, income earned by a "pass-through" entity is only taxed once at the shareholder level. Instead of applying a level of tax at the entity level, all items of income and deductions generally pass-through to the owners of the entity ratably in accordance with their ownership interest. The most familiar form of a pass-through entity is the partnership. Thus, a partnership does not generally pay income tax on the income it earns; rather the partners will include it on their personal income tax returns.

From a legal perspective, a corporation is an entity formed under state law as opposed to federal law. Other forms of doing business, such as the Limited Liability Company (LLC) or Limited Partnership, *inter alia*, are also formed under the laws of one of the states. It is important to make a distinction between the form of doing business under state law and how the entity is treated for federal tax purposes. The general rule for corporations is that they are taxed by the U.S. government as described above. However, the shareholders may make an "S" election which effectively taxes the corporation as a pass-through entity. Such an election is not available to all and comes with numerous limitations that may make it unappealing. Likewise, while an LLC is generally treated as a pass-through entity for federal tax purposes, the LLC members may elect to be taxed as a corporation. There are many non-tax reasons for selecting the form of entity to

conduct business. When a business is taxed as a corporation, shareholders often look for strategies to minimize the effect of double taxation.

One common strategy arises when shareholders capitalize corporations. Generally, a shareholder may contribute capital necessary to run the business in exchange for stock (i.e., ownership) in the company or they may loan the corporation money in exchange for an enforceable debt obligation. The benefit of the latter technique is that when the corporation pays interest on the debt, it is allowed a deduction against income. This in turn reduces the tax liability at the corporate level. Under the U.S. tax code, when a corporation pays a dividend to its shareholders there is no deduction against taxable income. In both scenarios, the shareholder will include the amount received on his or her tax return as income. As a result, a shareholder is often better served to capitalize a corporation with debt as a technique to get profits from the corporation and in the hands of the shareholder with only one level of tax. This strategy is so widely employed that Congress and the Treasury Department have instituted limits on the amount of debt a shareholder may use to capitalize a corporation. In addition to the deduction available on interest payments, the repayment of principal is not taxed to the shareholder giving the shareholder yet another method of getting earnings out of the corporation with only one level of tax. The influence of tax law on corporate finance decisions is well established in the literature (Ayers, Cloyd and Robinson, 2000), as well as the benefit of using shareholder debt in corporate finance (DeAngelo and Masulis, 1980) and (Modigliani and Miller, 1963).

This study undertakes to examine the extent shareholders are using debt to capitalize entities taxed as corporations under federal tax law using survey data from the Federal Reserve Board (Fed) for the year 2003. The Fed periodically conducts a voluntary survey of multiple businesses across the nation in a variety of industries. Given the sophistication of such tax planning techniques, one might expect that only those business owners who are themselves sophisticated or have access to tax advisors are more likely to utilize these techniques. Using demographic data from the same survey we examine the relationship between the debt used to capitalize a corporation and the level of sophistication of the business owners.

Historically, the undergraduate degree represented a level of education only a few attained. In today's business environment, having an undergraduate degree is more commonplace. In fact, many professionals have multiple post-secondary degrees. Some argue that having a graduate degree has become the minimal credential for high-skilled employment (Wendler et al, 2010). As a result, this study does not look to an undergraduate degree as a proxy for sophistication. Rather, it focuses on the graduate degree.

Using the graduate degree as a proxy for sophistication, we observe that companies filing federal taxes as a corporation make use of inside debt to a statistically significant degree. Inside debt represents obligations issued by the owner to the corporate entity and thus, an opportunity for owner to distribute earnings from the company in the tax-efficient manner previously described. Specifically, owners with graduate degrees are associated with 2 to 3 times more inside debt than non-graduate degree holders. Thus, if having obtained a graduate degree is a proxy for sophistication, our results indicate the more sophisticated owner utilizes complex tax planning techniques while operating in the corporate form.

One might expect the age of the firm is likewise a proxy for sophistication. However, our results indicate that having acquired business savvy through years of experience does not necessarily translate to being savvy in a tax planning context. This seems to be the case looking at our results with respect to firm age and the degree older firms utilize inside debt to capitalize entities taxed as corporations. In fact, our results show a decrease in the amount of inside debt as firms mature.

This could be explained by financial stability of a firm achieved over time as it developed as a going concern. Moreover, corporate firms with longevity may have paid down inside debt over time as earnings accumulated as the tax planning techniques described above would suggest.

## **2. LITERATURE REVIEW**

The tax benefits of capitalizing a corporation with inside debt have long been accepted in the literature, beginning with the observation by Modigliani and Miller (1963) that in the absence of tax advantageous deductions, the value of a company is unaffected by how it is capitalized. Later, Miller (1977) went on to argue that regardless of any interest deduction for tax purposes, the value of the firm is independent of its capital structure when the market is in equilibrium. It is worth noting that Miller's long-time co-author, Franco Modigliani, did not participate in the latter work.

DeAngelo and Masulis (1980) extend the analysis in Miller (1977) to include the use of corporate tax shields as an alternative to inside debt capitalization. Through the mid-1980s, however, studies failed to empirically show whether the tax status of a firm had an effect on its debt policy, as noted in Myers (1984), which predicts such a study would be "protracted." In fact, not until Mackie-Mason (1990) was a relationship between the issuance of debt by a firm and the tax deductibility of interest shown. Specifically, Mackie-Mason (1990) departs from looking at debt-to-equity ratios, what he defines as the accumulation of historic financing decisions, as was previously the predominant analysis in the literature; and rather focuses on individual marginal financing decisions, termed the "incremental choice approach."

Since that time, further refinement of the issue has been undertaken; first using samples of large publicly traded corporations, e.g., Dhaliwal, Trezevant, and Wang (1992); Graham (1996) and MacKie-Mason (1990). Then, Cloyd, Limberg and Robinson (1997) undertook an analysis of small business operations using the Fed's Survey of Small Business Finances for the years 1988-89. That study found a positive correlation between marginal tax rates and debt utilization in both firms taxed as corporations and firms taxed on a pass-through basis. Interestingly, the authors also take the position that small, closely-held firms are less inclined when compared to large firms to take on debt in spite of the apparent tax benefits citing potential bankruptcy costs as a larger percentage of firm value. On the contrary, at least with respect to inside debt, we would argue that because closely-held corporations have fewer shareholders and thus, a larger portion of corporate income subjected to two levels of tax is ultimately attributable to each shareholder, such shareholders are more inclined to utilize debt as a substitute for equity to mitigate double taxation. Alas, that debate is for another day.

More recently, Ayers, Cloyd and Robinson (2000) use the same Federal Reserve Survey for the years from 1993. This study tests the long-held hypothesis on small firms using a more recent Small Business Survey. While numerous studies in the meantime have sought to examine the use of debt instead of equity as a form of executive compensation, e.g. Edmans and Liu (2011), few recent studies have explored the utilization of inside debt as a tax benefit by small firms.

## **3. METHODOLOGY**

To provide new evidence that education and sophistication contributes meaningfully to the level of inside debt a firm obtains, we first compare the mean leverage ratios between firms that file their taxes as corporations and firms that file their taxes otherwise. Next, we estimate the effects education and sophistication have on the level of inside leverage using ordinary least squares. The first regression we estimate is:

$$\text{lev\_inside}_i = \lambda_1 + \lambda_2 \text{college}_i + \lambda_3 \text{graduate}_i + \lambda_4 \text{firm\_age}_i + \lambda_5 \text{experience}_i + e_i \quad (1)$$

where:  $\text{lev\_inside}_i$  is inside leverage [(inside debt/firm equity)] for firm  $i$ ;  $\text{college}_i$  is a dummy variable that equals one if the owner of the firm has a college degree;  $\text{graduate}_i$  is a dummy variable that equals one if the owner of the firm has a graduate degree;  $\text{firm\_age}_i$  is the age of the firm in years, and  $\text{experience}_i$  is the owner business experience in years.  $e_i$  is the error term for firm  $i$ .  $\lambda$ 's are coefficients to be estimated. The results from this regression are reported in Table 2.

The next regression we estimate uses the level of outside debt to determine the effects of education and sophistication. The regression we estimate is:

$$\text{lev\_outside}_i = \lambda_1 + \lambda_2 \text{college}_i + \lambda_3 \text{graduate}_i + \lambda_4 \text{firm\_age}_i + \lambda_5 \text{experience}_i + e_i \quad (2)$$

where:  $\text{lev\_outside}_i$  is outside leverage [(total liabilities – inside debt)/(firm equity)] for firm  $i$  and  $\text{college}_i$ ,  $\text{graduate}_i$ ,  $\text{firm\_age}_i$ ,  $\text{experience}_i$ ,  $\lambda$  and  $e_i$  are defined as above. The results from this regression are reported in Table 2.

We examine a subset of firms in the final set of regressions. Firms that have no loans from their partners or shareholders are removed from the sample so that we can examine more closely the marginal effects that education and sophistication have on the use of inside and outside debt. We repeat the previous regressions (1 and 2) with this subsample and report the findings in Table 3.

#### 4. DATA

The data we use comes from the Federal Reserve's 2003 Survey of Small Business Finances (SSBF), which is representative of the approximately 6.3 million U.S. small businesses.<sup>1</sup> The SSBF is a random sample of 4,240 nonfinancial, nonfarm for-profit business enterprises that have less than 500 employees, including sole proprietors, limited liability partnerships, partnerships, limited liability corporations and C and S Corporations. Since the focus of our study is on corporations and the level of shareholder debt, we exclude firms that file their taxes as sole proprietors, leaving a sample of 2,893 firms. We further reduce the sample by dropping financially constrained firms, including firms that report negative equity, firms that were always denied loans or renewals of lines of credit within the last three years, and firms that were discouraged from applying for loans or renewals of lines of credits within the last three years, leaving a sample of 2,033 firms. Since our primary analysis attempts to explain variation in the levels of inside and outside debt, it is necessary to exclude these firms since they may not be able to choose their desired capital structure, i.e., financially constrained firms may not be able to obtain outside debt and instead be forced to rely on inside debt and or equity. We also drop firms that have missing or erroneous values for total assets or total liabilities. For example, firms that report non-positive values for total assets and firms that have more or less debt than their reported total liabilities are excluded. This leaves a final sample of 1,661 firms, including 598 firms that file their taxes as corporations and 1,063 firms that file their taxes as corporations.

We use two different leverage ratios in this study, including inside debt over firm equity and outside debt over firm equity. Inside debt is the total amount of principal owed to partners or stockholders, and outside debt is equal to the total liabilities of the firm minus inside debt. Firms

<sup>1</sup> The survey was conducted during 2004-2005 and became publicly available in September 2006. Surveyed firms included those that were listed on Dun's Market Identifier file as of May 2004 and met the target population definition.

with higher inside (outside) debt to equity ratios are to be associated with taking more (less) advantage of the tax benefits of inside debt. To explore the effect education has on the leverage ratios, we use dummy variables for college and graduate degrees where degree equals one if the owner of the firm has a college (graduate) degree and zero otherwise.<sup>2</sup> We use the number of years of business experience the owner has and the age of the firm in years as proxies for sophistication, and scale each by 10. We hypothesize that more educated and more sophisticated firm owners will take greater advantage of inside debt, thus, we predict a positive and statistically significant correlation between inside debt and education, as well as positive relationship between inside debt and sophistication. Conversely, we predict a negative relationship between outside debt and the aforementioned variables.

## 5. RESULTS

We present descriptive statistics in Table 1. On average, firms that file their taxes as corporations have 6% less inside debt and 44.3% more outside debt than firms that file their taxes by other means. While these figures appear to contradict a primary assumption of our study, the leverage ratios reveal the opposite. The mean inside debt-to-equity ratio for firms that file their taxes as corporations is 0.32 compared to 0.22 for firms that file their taxes as non-corporations, or 45.5% greater on average. Conversely, the mean outside debt-to-equity ratio for corporations is 6% smaller than other firms. These ratios support the notion that non-pass-through firms do, in fact, take advantage of the benefits of inside leverage; whereas, pass-through firms rely more heavily on outside debt, at least as a percentage of total equity in the firm.

Table 1 presents summary statistics for 598 firms that file their taxes as corporations and 1,063 firms that file their taxes by other means. Firms that are taxed as corporations include LLPs filing taxes as a corporation, C corporations and LLCs filing taxes as a corporation. Firms that are not taxed as corporations include partnerships, LLPs filing taxes as a partnership, S corporations and LLCs filing taxes as a partnership. Inside debt is the total amount of principal owed on loans from partners/stockholders. Outside debt is equal to total liabilities of the firm minus inside debt. Total debt is the total dollar amount owed for all debts and liabilities. Firm equity is total amount of firm equity. Inside leverage is equal to inside debt divided by firm equity. Outside leverage is equal to outside debt divided by firm equity.

**Table 1: Descriptive Statistics for Corporations and Non-Corporations**

		<b>N</b>	<b>MEAN</b>	<b>MIN</b>	<b>MAX</b>	<b>SD</b>
<b>FIRMS TAXED AS CORPORATIONS</b>	<b>Inside debt</b>	598	72,464	0	6,000,000	315,996
	<b>Outside debt</b>	598	3,160,000	202	216,000,000	12,400,000
	<b>Total debt</b>	598	3,230,000	202	216,000,000	12,400,000
	<b>Firm equity</b>	598	2,660,000	0	118,000,000	7,620,000
	<b>Inside leverage</b>	598	0.32	0.00	110.06	4.48
	<b>Outside leverage</b>	598	3.16	0.00	232.57	13.41
<b>FIRMS NOT TAXED AS CORPORATIONS</b>	<b>Inside debt</b>	1,063	77,125	0	7,500,000	405,962
	<b>Outside debt</b>	1,063	2,190,000	29	183,000,000	9,240,000
	<b>Total debt</b>	1,063	2,270,000	29	183,000,000	9,350,000
	<b>Firm equity</b>	1,063	1,840,000	0	60,900,000	4,380,000
	<b>Inside leverage</b>	1,063	0.22	0.00	45.32	1.70
	<b>Outside leverage</b>	1,063	3.36	0.00	458.69	17.16

<sup>2</sup> To avoid multi-collinearity problems, we orthogonalize the graduate degree dummy variable to the college degree dummy variable.

We present ordinary least squares regression results in Table 2 where the dependent variable is the inside debt-to-equity ratio for columns 1 and 3 and outside debt-to-equity ratio for columns 2 and 4. As the overarching goal of this study is to attribute the use of inside debt to knowledge and sophistication, we begin by focusing on the business experience of the owner and whether or not the owner has a college or graduate degree. As reported in column 1, firms with owners with graduate degrees that file their taxes as corporations have approximately 117% higher inside leverage ratios, a result that is significant at the 5% level. No other significance for graduate degree is observed, including outside leverage for firms that file their taxes as corporations and inside or outside leverage for firms that file by other means. These results support our assertion that more educated owners do indeed take advantage of the benefits of inside debt, and that outside debt is less desirable for more educated firm owners. In contrast, no significant relationship is found for firm owners with college degrees in all of the regressions we report in Table 2. While this may contradict the notion that education is correlated to taking advantage of inside debt, we assert that a college degree is more of a general degree today, whereas a graduate degree tends to be more specialized and associated with more sophisticated and, perhaps, more experienced firm owners.

Table 2 reports regression results of firm leverage ratios (inside and outside debt-to-equity) on education and sophistication variables. Regression results for firms that file their taxes as corporations are displayed in columns 1 and 2; regression results for firms that file their taxes by other means are displayed in columns 3 and 4. Age of firm is age of firm in years divided by 10. College degree and Graduate degree are dummy variables that equal one if the primary owners of the firm have a college (graduate) degree and zero otherwise. College degree and Graduate degree are highly correlated and are thus orthogonalized to each other. Experience is the number of years of business experience of the primary owners divided by 10. \*, \*\* and \*\*\* represent significance at the 10%, 5% and 1%, respectively.

**Table 2: Inside and outside leverage for corporations and non-corporations**

VARIABLES	FIRMS THAT FILE TAXES AS CORPS		FIRMS THAT DON'T FILE AS CORPS	
	Inside Leverage	Outside Leverage	Inside Leverage	Outside Leverage
Age of Firm	<b>-0.029*</b> (0.088)	<b>-0.155***</b> (0.002)	<b>-0.011**</b> (0.034)	-0.069 (0.186)
College Degree	0.493 (0.204)	0.855 (0.457)	-0.086 (0.421)	-1.743 (0.107)
Graduate Degree	<b>1.167**</b> (0.022)	2.314 (0.123)	0.113 (0.439)	-0.130 (0.930)
Experience	<b>0.041**</b> (0.041)	<b>0.140**</b> (0.017)	<b>0.013**</b> (0.012)	0.017 (0.759)
Constant	-0.368 (0.513)	2.397 (0.150)	0.146 (0.283)	<b>5.188***</b> (0.000)
Observations	598	598	1,063	1,063
R-squared	0.018	0.021	0.008	0.004

As reported in columns 1 and 2 of Table 2, more business experience is associated with more inside and outside debt. A 10 year increase in business experience for firm owners that file their taxes as corporations corresponds to a 4% to 14% increase in inside and outside leverage, respectively, whereas a 10 year increase in business experience for firm owners that file their taxes as non-corporations corresponds to a 1.3% increase in inside leverage. These results are significant

at the 5% level and are somewhat perplexing. While we expected business experience to be positively correlated with inside leverage, particularly for owners of firms filing their taxes as corporations, we expected to see greater economic significance associated with inside leverage versus outside leverage.

Columns 1 and 3 of Table 2 reveal a negative and statistically significant relationship between inside leverage and the age of the firm, indicating that older firms have less inside debt as a percent of firm equity. We had predicted a positive relationship, assuming that mature firms would more readily take advantage of the benefits of inside debt; however, it is conceivable that these firms have a build of equity and rely less on debt in general over time. This notion is supported by the results reported in Column 2 where a negative and statistically significant (at the 1% level) relationship between outside leverage and the age of the firm is observed. It is interesting to note, however, that no significant relationship is found between outside leverage and firm age for firms that don't file their taxes as corporations.

In Table 3, we report ordinary least squares regressions on subsamples of firms that have inside debt. By omitting firms without inside debt, the subsamples consist of 162 firms that file their taxes as corporations and 249 firms that file their taxes by other means. Similar to the results in Table 2, there is a positive and statistically significant relationship between owners with graduate degrees and inside debt for firms that file their taxes as corporations. On average, these owners have approximately 387% higher inside leverage ratios, a result that is significant at the 5% level. No other significance is observed for graduate degree or college degree. The only other significant results reported in Table 3 are related to business experience, where a 10 year increase in experience corresponds to 10.6% increase in inside leverage for firms that file their taxes as corporations and a 3.6% increase in inside leverage for firms that file their taxes by other means.

Table 3 reports regression results of a subsample of firms for leverage ratios (inside and outside debt-to-equity) on education and sophistication variables. The subsample includes firms that have inside debt. Regression results for firms that file their taxes as corporations are displayed in columns 1 and 2; regression results for firms that file their taxes by other means are displayed in columns 3 and 4. Age of firm, College degree, Graduate degree and Experience are as defined in Table 2. \*, \*\* and \*\*\* represent significance at the 10%, 5% and 1%, respectively.

**Table 3: Subsample of firms that have inside debt**

VARIABLES	FIRMS THAT FILE TAXES AS	FIRMS THAT DON'T FILE	AS FIRMS	
	INSIDE LEVERAGE	OUTSIDE LEVERAGE	INSIDE LEVERAGE	OUTSIDE LEVERAGE
Age of Firm	-0.096 (0.136)	-0.017 (0.585)	-0.024 (0.166)	-0.021 (0.892)
College Degree	1.873 (0.189)	-0.092 (0.893)	-0.365 (0.414)	-5.998 (0.135)
Graduate Degree	<b>3.871**</b> <b>(0.037)</b>	0.809 (0.361)	0.459 (0.450)	-0.793 (0.884)
Experience	<b>0.106*</b> <b>(0.097)</b>	0.017 (0.577)	<b>0.036*</b> <b>(0.094)</b>	-0.011 (0.955)
Constant	-0.555 (0.789)	<b>2.099**</b> <b>(0.037)</b>	0.693 (0.255)	<b>9.238*</b> <b>(0.090)</b>
Observations	162	162	249	249
R-squared	0.058	0.009	0.020	0.009

## 6. CONCLUSION

Using the graduate degree as a proxy for sophistication, we observe that firms filing federal taxes as a corporation make use of inside debt to a statistically and economically significant degree. Inside debt represents obligations issued by the owner to the corporate entity and thus, an opportunity for owner to distribute earnings from the firm in the tax-efficient manner previously described. Specifically, owners with graduate degrees are associated with 2 to 3 times more inside debt than non-graduate degree holders. Thus, if having obtained a graduate degree is a proxy for sophistication, our results indicate the more sophisticated owner utilizes complex tax planning techniques while operating in the corporate form.

One might expect the age of the firm is likewise a proxy for sophistication. However, our results indicate that having acquired business savvy through years of experience does not necessarily translate to being savvy in a tax planning context. This seems to be the case looking at our results with respect to the age of firm variable and the degree older firms utilize inside debt to capitalize entities taxed as corporations. In fact, our results show a decrease in the amount of inside debt as firms mature. This could be explained by financial stability of a firm achieved over time as it developed a going concern. Moreover, corporate firms with longevity may have paid down inside debt over time as earnings accumulated in accordance with the tax planning techniques described above.

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