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Firm age, corporate governance, and capital structure choices☆

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ABSTRACT

Do the effects of corporate governance on corporate capital structure choices change as a public firm ages? First, we address the direct effects of firm age and governance features on both its decisions to use debt and how much debt to employ. Our analysis reveals a number of novel results. While firm age is positively correlated with the use of debt, it is negatively correlated with how much debt a firm uses. We also find that the effects of firm age on how much debt a firm uses is primarily due to the interaction between firm age and its governance features. The more power that insiders possess, the less debt that the firm uses as it ages. We interpret our evidence as implying that over time, managers allow their risk preferences to dominate their firm capital structure decisions when they are protected from discipline.

1. Introduction

Prior research suggests that as a firm grows older many of its features change, and collectively these influence a number of aspects of its behavior. In terms of a firm's capital structure decisions, there are several studies that document how aging firms have more assets-in-place than growth options, and so justifies their taking on more debt (e.g., Hovakimian et al., 2001; Sundaresan et al., 2015, etc.).[1]

In a different vein, other research suggests that after going public, the appropriateness of different corporate governance features for aging firms also changes. Filatotchev et al. (2006) argue that as firms age (and particularly after their IPO), their governance (board composition) needs to change to reflect its different needs.[2] More recently, Johnson et al. (2016) argue that the costs and benefits of takeover defenses change as the firm ages. They report evidence that after a firm's IPO, the costs tend to outweigh the benefits as the firm ages and is reflected in their valuation, especially in firms that employ the most stringent defenses. Both of these studies suggest that the effect of these features on a firm's capital structure decisions may change as the firm ages as a publicly traded firm.

Given the above points, we are the first study to examine how the age of a firm since its initial public offering mediates the effects of its governance on the firm's capital structure choices. However, to examine this issue we must confront several issues

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[1] So accepted is this argument, that it even shows up in textbooks (e.g., Vernimmen et al., 2005, etc.).

[2] While Filatotchew, Toms and Wright discuss the need for the governance of a firm to change over the different phases of its life cycle, they only provide illustrations of why the composition of the board needs to change.

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that are poorly addressed in prior research. First, much of the prior empirical research has used capital structure measures that violate the concerns raised by Welch (2007, 2011). For example, many empirical corporate capital structure studies use measures for which equity is not the obverse of debt, or vice versa. Second, a number of studies use book value measures (e.g., Mehran, 1992, etc.) and fail to recognize that the book value of equity is a plug number in accounting. As a consequence, book value measures cannot reveal much about a firm's financing choices except for firms that have not suffered a loss.

Third, prior research on the influence of corporate governance on corporate capital structure typically uses capital structure measures that are compositional or fractional variables. This fact has both statistical and theoretical implications. As pointed out by statisticians (e.g., Cox, 1996) and econometricians (e.g., Papke and Wooldridge, 1996), the conditional expectation function for such variables must be nonlinear since these are doubly-bounded random variables. Unfortunately, the implications of using linear or censored linear regression models for these data are poorly understood, as evidenced by the continued use of such linear or censored linear regression models in capital structure studies. When one estimates a linear regression model for these data, then one is effectively estimating the first order terms of a Taylor series approximation. Thus, all the higher order terms are now relegated to the error term which induces endogeneity bias across all the explanatory variables. As a result, one cannot trust the evidence from estimating linear models for these data either in terms of their parameter estimates, their standard error estimates, or their assessment of the endogeneity of an explanatory variable. Since corporate governance is often viewed an endogenous outcome, this last issue is a critical concern.

Fourth, the vast majority of these studies ignore the evidence that there are firms in their samples that do not use "debt" as they define debt. This treatment has statistical and theoretical implications. Statistically, prior research that uses either a censored linear or a linear regression model for similar data ignores the selection issue. Theoretically, they are ignoring the possibility that the decision to use 'debt' is influenced by different factors and in various ways than the decision on how much debt to use *conditional* on the decision to use debt. Consistent with this concern, prior research (e.g., Strebulaev and Yang, 2013) implies that the governance features of firms that do not use 'debt' are quite different from firms that do. Thus, the failure to address this aspect of the data raises additional issues in interpreting prior evidence on the influence of corporate governance on corporate capital structure decisions.

Our paper contributes to the literature by examining the effects of firm age on how corporate governance influences a firm's capital structure choices after explicitly addressing the aforementioned empirical concerns. To do this, we use data on U.S. corporations from 1996 to 2016. Based on our examination of these data, we draw the following major conclusions.

First, firm age, without considering its interaction with different corporate governance features, is negatively correlated with a firm's use of debt conditional on its using debt. This result contrasts with extant arguments about the correlation between firm age and corporate capital structures. But, as we show, this negative effect is largely due to the interaction between firm age and its governance features.

Second, consistent with Strebulaev and Yang (2013), we find that the corporate governance features that significantly influence whether a firm uses debt differ from those that influence how much debt that the firms uses if it uses debt. More specifically, we find that dual class firms are more likely to be all equity firms initially, but they are also more likely to use debt as they age as public corporations. We interpret this evidence to imply that these firms turn to lower cost sources of external financing to fund their growth since selling new equity might be more expensive for them.

Third, we find evidence the corporate charter provisions of a firm and its board composition are correlated with omitted variables in regression models of how much debt financing that a firm chooses to use *conditional* on its using debt. In the case of corporate charter provisions, our evidence is consistent with the evidence in Karpoff et al. (2017). More importantly, these omitted factors are negatively correlated with the firm's use of debt financing and so may account for prior evidence of negative correlations between these governance features and corporate debt use.

Fourth, we find evidence that as a firm ages, its corporate charter restrictions and board composition influence its capital structure choices quite differently than they do when the firm is young. This evidence is consistent with the arguments in Filatotchev et al. (2006) and Johnson et al. (2016). Further, these changes largely explain why we find that firm age is negatively correlated with how much debt financing a firm uses.

Altogether, we interpret our evidence as suggesting that as a firm grows older, entrenched managers are able to let their risk preferences play a greater role in their firm's capital structure decisions (e.g., Bertrand and Mullainathan, 2003; Morellec, 2004; Lewellen, 2006; Gow et al., 2016, etc.). To lay out our evidence for the above conclusions, we organize our paper as follows. Section 2 describes our sample construction and variable definitions. Section 3 provides our baseline analyses on the issues of concern, and Section 4 provides evidence on the robustness of our conclusions. Section 5 assesses the implications of our findings, and Section 6 concludes.

2. Sample data and variable definitions

To construct our sample, we start with the corporations in Compustat with non-negative total assets or sales between 1996 and 2016. We use this database for our annual and quarterly accounting data. We then matched these data with data from CRSP to compute certain variables (e.g., asset volatility). We also match these data with data from the FRED database for inflation measures, and with before financing tax estimates from John Graham.[3]

[3] We thank John Graham for making these data available for our use. These estimates are based on the methodology detailed in Graham and Mills (2008).