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An empirical analysis of zero-leverage firms: New evidence from the UK☆

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ABSTRACT

This paper examines why some firms have no debt in their capital structures despite the potential benefits of debt financing. It adds new insights to this zero-leverage phenomenon by addressing two unexplored questions: Does a firm have zero leverage as a consequence of financial constraints or because of a strategic decision to mitigate underinvestment incentives and preserve financial flexibility? Is the decision to follow a zero-leverage policy affected by macroeconomic conditions? Analyzing a new sample of UK firms over the period 1980–2007, we show that the zero-leverage policy is prevalent but that zero-leverage firms are not homogeneous. There are two distinct groups of unlevered firms with different levels of constraints as measured by their dividend policy, namely payers and non-payers. Importantly, we find new evidence that these groups have different motives for eschewing debt. Firms in the second group (non-payers) have zero leverage mainly due to financial constraints. Firms in the first group (payers) deliberately eschew debt to mitigate investment distortions, as predicted by the underinvestment and financial flexibility hypotheses. Macroeconomic conditions have a significant effect on the zero-leverage decision, especially for this less constrained group.

1. Introduction

One of the most well-known puzzles in corporate finance is the stylized fact that firms carry substantially less debt than is predicted by dominant capital structure theories (e.g., Graham, 2000; Miller, 1977). In addition, recent research on debt conservatism has documented a new and equally important empirical observation that many firms have no debt presence in their capital structures, despite the potential tax advantage of debt financing (Strebulaev & Yang, 2013). The purpose of this paper is to provide new insights into the zero-leverage phenomenon through an empirical analysis of UK firms.

The reasons why a firm would rely fully on equity financing are not well understood in the literature. Although a number of studies have examined conservative financial policies (Iona, Leonida, & Ozkan, 2007; Lemmon & Zender, 2001; Minton & Wruck, 2001) and their interactions with investment strategies (Arslan-Ayaydin, Florackis & Ozkan, in press; de Jong, Verbeek, & Verwijmeren, 2012; Marchica & Mura, 2010; Muradoğlu & Sivaprasad, 2012), they do not specifically investigate the zero-leverage phenomenon. This is a significant omission because studying zero-leverage firms can help us to better understand the related 'low-leverage puzzle' (Korteweg, 2010; Strebulaev & Yang, in press), and overcome the methodological difficulties in identifying what constitutes a low-leverage policy (Devos, Dhillon, Jagannathan, & Krishnamurthy, 2012).

In two contemporaneous empirical studies, Strebulaev and Yang (2013) and Devos et al. (2012) both investigate zero-leverage firms in the US, but provide mixed results. Strebulaev and Yang (2013) find evidence that firms' zero-leverage decisions are affected by managerial features and governance characteristics such as CEO ownership and tenure, board size and independence, and family control status. However, Devos et al. (2012) argue that neither internal nor external governance mechanisms are likely to explain a firm's conservative approach to debt financing. Specifically, they show that a firm will use little debt, not because its managers are entrenched and prefer conservative financial policies, but because the firm has limited access to the debt markets. Devos et al.'s (2012) results are thus consistent with the financial constraint argument that, due to market frictions, a firm cannot borrow to finance positive NPV projects. In the presence of asymmetric information, for example, some firms, especially those that are small and young (Hadlock & Pierce, 2010), may face credit rationing because lenders are unable to identify the quality of their assets in place and new growth opportunities (e.g., Stiglitz & Weiss, 1981).

In this paper, we are interested in two issues that have not been examined in the aforementioned studies of zero-leverage firms. First, we study whether a firm's zero-leverage policy is simply a consequence of financial constraints or is also driven by strategic motives. There are

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two potential theoretical explanations of why a firm would deliberately eschew debt financing. The underinvestment hypothesis posits that firms with high growth opportunities should avoid debt financing *ex ante* to alleviate the conflict of interests between debtholders and equityholders, thereby controlling the 'debt overhang' problem and the resulting underinvestment incentives (Myers, 1977). The financial flexibility hypothesis argues that, in the presence of market frictions such as adverse selection (Myers & Majluf, 1984) or transaction costs (e.g., Leary & Roberts, 2005), firms eschew debt but accumulate cash to save their borrowing capacity for future investment opportunities (DeAngelo & DeAngelo, 2007; Gamba & Triantis, 2008). Both the underinvestment and financial flexibility hypotheses predict that firms strategically have zero leverage in order to mitigate investment distortions.

Second, we examine whether macroeconomic variables play a role in determining firms' zero-leverage policies. Existing studies only investigate the effects of firm-level factors on a firm's propensity to have zero leverage (Devos et al., 2012; Strebulaev & Yang, 2013). However, prior evidence in the literature suggests that capital structure decisions are affected, not only by firm-specific characteristics, but also by macroeconomic conditions (Antoniou, Guney, & Paudyal, 2008; Cook & Tang, 2010; Erel, Julio, Kim, & Weisbach, 2012; Korajczyk & Levy, 2003). Choe, Masulis, and Nanda (1993) show that economic growth in expansionary periods reduces adverse selection costs and subsequently leads to greater volumes of equity issues. Thus, at the aggregate level, equity issues are pro-cyclical while debt issues are counter-cyclical. On the other hand, in the context of the credit channel, the balance sheet channel theory implies that firm-level leverage is pro-cyclical. In an economic slowdown, firms use little debt because the value of collateral, against which they borrow, declines (e.g., Bernanke & Gertler, 1989; Kiyotaki & Moore, 1997). Further, the impact of macroeconomic variables on corporate borrowing varies across firms with different degrees of financial constraints (Gertler & Gilchrist, 1993). Unconstrained firms can borrow to smooth the impact of an economic shock, while their constrained counterparts cannot afford to do so due to a proportionately larger premium on external funds. Overall, adverse macroeconomic conditions have an important effect on firms' zero-leverage decisions, although the effect is expected to be more pronounced for constrained firms.

In sum, our paper contributes to the limited literature on zero-leverage firms by addressing two previously unexplored questions: (1) Do firms have zero leverage simply due to their lack of external financing or because of a strategic decision to mitigate underinvestment incentives and preserve financial flexibility? (2) Do macroeconomic conditions affect firms' zero-leverage decisions and is the effect different for constrained and unconstrained firms?

In addition to this main contribution, we analyze a new sample of zero-leverage firms in the UK. As reviewed above, the contemporaneous studies on zero-leverage policies focus on US firms. On the other hand, although several studies have examined the capital structure choices of UK firms (e.g., Bennett & Donnelly, 1993; Bevan & Danbolt, 2002, 2004; Ozkan, 2001), they do not investigate the zero-leverage phenomenon. Our paper thus fills this important gap in the literature by examining zero-leverage firms in the UK. We focus on UK firms because the UK provides a particularly suitable environment in which to study extreme debt conservatism. It is well documented that UK firms, on average, have lower leverage ratios than those in other industrialized economies (Antoniou et al., 2008; Rajan & Zingales, 1995). In particular, while the UK is a market-based economy similar to the US, UK firms are more conservative in their debt policies than US firms. The difference in their leverage choices exists mainly because the UK has a creditor-friendly bankruptcy code and the US has an equity-friendly one (Acharya, Sundaram, & John, 2011). We expect the zero-leverage policy to be more widespread among UK firms than among their US counterparts, making the UK corporate sector a better testing ground for the zero-leverage phenomenon.

Our empirical analysis provides four main findings. First, we show that the zero-leverage phenomenon is indeed an important empirical fact in the UK corporate sector. Over the sample period between 1980 and 2007, 12.18% of non-financial (publicly listed) firms in the UK have zero outstanding debt, compared to the 10.2% in the US documented by Strebulaev and Yang (2013). This finding supports our conjecture that the zero-leverage policy is more common in the UK than in the US. Further, we document that more than one third of UK firms have no debt for at least a part of the sample period. Extreme debt conservatism has become more prevalent in recent years, and was especially so over the period 2000–2007, when nearly a fifth of firms were debt-free.

Second, zero-leverage firms are not homogeneous. We identify two relatively equal-sized groups of zero-leverage firms that face different levels of financial constraints, as proxied by their dividend policy, namely dividend payers and non-payers. The second group (i.e., zero-leverage non-payers) consists of young, growth firms with small size, negative profitability, and low tangibility and *z*-scores. These characteristics fit the description of a typical constrained firm. In contrast, firms in the first group (i.e., zero-leverage payers) do not face severe constraints because they are more mature and profitable, as well as larger in size, with relatively higher dividend payout ratios.

Third, and more importantly, we find that these two groups of firms have different motives for eschewing debt. For firms in the second group (non-payers), having zero leverage is mainly a consequence of their limited exposure to the debt markets. This finding is consistent with the financial constraint hypothesis and is in line with Devos et al. (2012). However, for firms in the first group (payers), the zero-leverage policy is not simply caused by a lack of external financing but is driven by strategic considerations. We find that firms with high growth prospects are more likely to have zero leverage so as to mitigate underinvestment incentives and preserve financial flexibility. Zero-leverage firms, especially those in the first group (payers), are likely to take advantage of their preserved borrowing power and lever up when valuable investment opportunities arise and/or their cash reserves are depleted. Moreover, following the strategic decision to eschew debt, the ability of these firms to invest in future growth opportunities is enhanced. Taken together, we document strong evidence in favor of the financial constraint hypothesis for unlevered non-payers, and some support for the underinvestment and financial flexibility hypotheses, especially for unlevered payers.

Finally, our analysis suggests that firms are likely to eschew debt under macroeconomic conditions that are not conducive to corporate borrowing, conditions characterized by a low, or even negative, GDP growth rate or a widened term structure of interest rates. However, the effects of these macro-level variables on firms' zero-leverage policies and on zero-leverage firms' decisions to issue debt are only significant for the relatively less constrained group of payers.

The remainder of the paper is organized as follows. Section 2 discusses potential theoretical explanations for the zero-leverage phenomenon. Section 3 develops the empirical models and methods, and describes the data and sample. Section 4 analyzes the characteristics of zero-leverage firms. Section 5 provides a multivariate analysis of the propensity of firms to eschew debt and the decision of zero-leverage firms to subsequently lever up. In this section, we also conduct a regression analysis to assess the ability of firms to invest following a period of zero-leverage policy. Section 6 concludes the paper.

2. Potential explanations for a zero-leverage policy and hypothesis development

In this section, we review potential explanations for the zero-leverage phenomenon, as suggested by the existing theories on capital structure. We also discuss several variables that we use in our empirical work to test those explanations.

2.1. The financial constraint hypothesis

In imperfect capital markets, a firm's capital structure is determined not only by its demand for capital, but also by its ability to