

The Investment Flexibility of Zero-leverage Firms

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It has been well documented empirically in the limited zero-leverage literature that following a period of applying zero-leverage policy, firms invest more. This enhanced ability to invest is shown by firms adopting a zero-leverage policy for a short period of time or alternatively by firms that are financially unconstrained (Bessler et al, 2013; Dang, 2013). One plausible theoretical explanation for this investment behaviour is that by deliberately eschewing debt firms can preserve financial flexibility in order to use it in the future to mitigate investment distortions and alleviate underinvestment incentives. In this context Lindstrom and Heshmati (2004) emphasize an important shortcoming in extant dynamic capital structure research. According to the authors there is a need to consider investment (real) flexibility, financial flexibility as well as their interactions while evaluating the joint investment and financing decisions of firms. The purpose of this paper is to overcome this limitation and contribute to the zero-leverage literature by critically examining both these flexibilities and their interactions in explaining the investment behaviours and timings of zero-leverage firms.

Financial flexibility substantially preserves real flexibility in so far as the two overlap in their effects and, hence are partial substitutes (Mauer and Triantis, 1994). Financial flexibility is defined as firm's ability to access and restructure its financing at a low cost (DeAngelo & DeAngelo, 2007). This ability is valuable if it reduces either under (over) investment incentives derived from agency costs or the information asymmetry costs related to market transaction. Real flexibility, in turn, is defined as firm's ability to meet future operating and investment needs or growth options (Lindstrom & Heshmati, 2004). On the one hand this flexibility increases current debt capacity by raising the collateral and liquidation value of a firm's assets, but on the other hand, when it is used to implement new risky projects it also decreases future debt capacity. Financial flexibility in many ways determines

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investment flexibility. The interaction between financial and investment flexibility derives from the fact that the former allows a firm to be fully flexible in timing its real investments. In particular it is obvious that both accumulating cash as well as preserving debt capacity generate financial flexibility. Therefore if a given firm faces a time consuming process in accessing debt then its cash reserves can buffer it and ensure that its investment budgets are met in a timely manner (Hirth & Homburg, 2010). This is why scholars like Trigeorgis (1993) underline the importance of considering interactions between real and financial flexibilities especially when investments involve complex uncertain stages or take time to implement.

Investment (real) flexibility is uniquely influenced by the financial flexibility of a firm and there are at least three reasons why it should be considered in any leverage analysis. First, since capital stock adjustments provide information about real flexibility (Lindstrom & Heshmati, 2004) incorporating it in the analysis is extremely useful. For example if a given firm's speed of capital stock adjustment is high it can be inferred that it is demonstrating higher investment flexibility by closing larger gaps between desired and target capital stock. Second, investment ability depends on financial ability. Leverage choice in turn is based on financial ability. Therefore a comprehensive picture of leverage choice can only be obtained if both types of flexibilities and their interactions are considered. Third, investment flexibility measures a firm's strategic ability to time its investments. There may be uncertain economic situations in which a healthy firm may deliberately choose to delay investment and slow its speed of capital stock adjustment simply because doing so is costly.

This paper contributes to the zero-leverage literature and may have implications for the financial flexibility scholarship in five ways. First, the analysis of investment flexibility in the context of zero-leverage is unique. It adds to our understanding of the investment behaviour of zero-leverage firms by focusing on the interactions between investment and financial flexibility. My results show that these interactions allow zero-leverage firms to implement investments faster and thus close a higher 18% of the gap between desired and actual capital stock per year. This speed of capital stock adjustment is invariably higher than that of their levered peers who average a much lower 8.1% per year. It is the inherent financial flexibility in zero-leverage choice that

seems to enhance the speed of adjustment and investment ability of such firms differentiating them from their counterparts.

Second, unlike the extant and limited zero-leverage literature, this paper investigates the investment behaviour of zero-leverage firms across different economic periods. This helps us to distinguish between micro and macro economic influences on zero-leverage investment behaviour. Difficult economic times in this analysis include two different not necessarily identical periods i.e. uncertain times and recessionary times. Macroeconomic data suggests that there may be several times of economic uncertainty that may not be officially classified as recessions. To capture these I use the different levels of interest rates (3 months US treasury bill) as an indicator of the degree of uncertainty. I classify recessionary times based on the standard formulation of significant declines in GDP. My results show that although zero-leverage firms invest relatively slowly in recessions than in non-recessionary periods (17% in former and 19% in latter) uniquely, their investment speeds remain higher than their levered peers in both economic periods. This indicates that interactions between real and financial flexibility enable the former to weather bad times much better than the latter.

Third, expanding that analysis to include degrees of economic uncertainty as captured by short-term interest rates, this paper uncovers important elements about investment timing of zero-leverage firms that have largely been ignored by zero-leverage literature. Zero-leverage firms display higher abilities to invest during all interest rate periods, including periods of high uncertainty, when compared to their levered peers. But more interestingly, my results demonstrate that financially unconstrained zero-leverage firms time their investments strategically. The enhanced investment flexibility that such firms enjoy enables them to delay their investments and wait until the uncertainty in the market is resolved. Their ability to rely on internal funds allows them to slow their investments in uncertain times to maintain future financial flexibility and avoid costly external finance. By contrast their financially constrained peers continue to invest faster during relatively high interest rate periods and uncertain times. This may be explained both by their incentives to accelerate investments in the present to generate cash and avoid under-investments in the future as well as their need to prioritise current investment to survive given their early life stage.

Fourth, this paper uses an unconventional econometric method to study the investment behaviour of zero-leverage firms. It uses a reduced form of error correction model unlike zero-leverage studies that use only dynamic Q-models. The superiority of the error correction model lies in its ability to estimate the deviation of capital stocks from the long-run equilibriums i.e. the error correction coefficient and its influences on short-run dynamics. This is true since it is based on a method that estimates both short and long-term effects of one time series on the other. It thus estimates the speed with which firms return to equilibrium capital stock levels an indicator used by this paper as a proxy of investment flexibility.

Finally, unlike zero-leverage studies this paper investigates the investment behaviour of zero-leverage firms in the US in isolation for the first time. Bessler et al, (2013) investigate the investment behaviour of an international sample including the US whereas Dang (2013) considers only the UK sample. In overall these papers are only the ones examine the investment behaviour of zero-leverage firms. The pioneering study of Strebulaev and Yang (2013) that based on the US sample recommends the investigation of the endogenous link between zero-leverage and their investments and hence our study extends their work in particular.