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Estimating Dynamic Panel Model of Leverage Decision: Evidence from Malaysia

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Abstract

This study investigates the impact of dynamic relationship by the presence of a lagged leverage decision ($LEVE_{t-1}$) to leverage decision. Dynamic panel model is developed to identify the possible effect of previous leverage decision on leverage adjustments speed of publicly listed companies in Malaysia for the period of 2004-2013. The dynamic panel results show that Malaysian public listed companies adjust debt and the speed of adjustment is approximately 21% to 26% per annum (System Generalized Method of Moments). This indicates that Malaysian public listed firms adjust their leverage and change their financing following temporary deviations from target in order to return leverage towards its optimum. This study contributes to firm leverage decisions by estimating the mean reversion towards target which is absent specifically in Malaysia context. Critically, the results of this study pave the way for a more advanced and mixed method approach to firm leverage decision in Malaysia.

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Keywords: Dynamic panel models; Leverage; Malaysia public listed companies

1. Introduction

Over the past 50 years, most of the financial researchers have advanced theoretical models to explain the financial structure pattern and also figure out whether the theoretical models have explanatory power in the real business world (Chen, 2004). One of the issues which are often faced by finance managers is the determinants of financial structure. A false financing decision may lead to financial distress and eventually bankruptcy (Eriotis *et al.*, 2007). It is suggested that utilization of different levels of debt and equity in the firm's financial structure is one of the firm-specific strategy

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used by managers in searching for performance improvement (Gleason *et al.*, 2000). Even though there are theories and empirical researches suggest there is an optimal capital structure, there is no specified method to help the finance managers to decide an optimal leverage level (Eriotis et al., 2007). Thus, finance managers are primarily concern about whether their firm are overleveraged or underleveraged, and much less concerned about the precise optimal level of debt. There are many studies have been conducted to compare the traditional theories in firm financial structure decision. The most common comparison is between Trade-off Theory (TOT) and Pecking Order Theory (POT) (Chirinko and Singha, 2000; Fama and French, 2002; Shyam-Sunder and C Myers, 1999; Tong and Green, 2005). However, developments in literature imply that financial structure decision could result an optimal leverage level by maximizing its value. This explains that firms target their financial structure and amend their financing following temporary deviations from target towards its optimal level (Ebrahim *et al.*, 2014). By employing traditional panel model, the adjustment of leverage is instantaneous albeit incompatible with real-life situation. In contrast, dynamic panel models is able to incorporate a gradual process of adjustment.

Moreover, dynamic capital structure model (Abdeljawad *et al.*, 2013; Ebrahim et al., 2014; Flannery and Hankins, 2013) provides a promising explanation through a new perspective on the movement of firms' financing decision. There are many studies have been conducted to compare the traditional theories in firm leverage decision (Ebrahim et al., 2014). On the other hand, various determinants of leverage adjustments speed only focus macroeconomic variables such as cash flow and leverage adjustments (Faulkender *et al.*, 2012); types of corporation (Park *et al.*, 2013); firm and industry levels (Gungoraydinoglu and Öztekin, 2011); internal capital markets (Fier *et al.*, 2013); macroeconomic conditions (Cook and Tang, 2010); institutional ownership (Öztekin and Flannery, 2012); corporate governance (Chang *et al.*, 2014). This paper follows Ebrahim et al. (2014) by employing dynamic panel model on the possible effect of previous leverage decision and their effects on leverage adjustments speed in Malaysia. Based on the above statements, this study is designed to estimate the dynamic relationship by the presence of a lagged leverage decision ($LEVE_{t-1}$) to leverage decision. It is hope that to bridge the gap and shed some lights to the literature, specifically in Malaysia.

Hence, this paper attempts to fill the methodological gaps by employing dynamic panel models to leverage decision of publicly listed companies in Malaysia for the period of 2004-2013. Following the suggestions made in the literature (Ebrahim et al., 2014; Flannery and Hankins, 2013; González *et al.*, 2011), this study will contribute to firms' leverage decisions by estimating the mean reversion towards target though consensus which is absent, specifically in Malaysia context.

2. Literature Review

Empirical studies have provided answers by estimating the mean aversion towards target through dynamic panel models of corporate leverage. Welch (2004) does not find any evidence where firms could adjust their leverage towards target leverage. However, Fama and French (2002) agree that firms adjust between 7 and 18 per cent annually. Other than that, Flannery and Rangan (2006) use three main hypotheses based on TOT, POT and Market Timing Theory (MTT) and conclude an adjustment speed above 30 per cent. Consistently, Lemmon *et al.*, 2008 find that the majority of variation in leverage ratios is driven by an unobserved time-invariant effect that generates surprisingly stable leverage decision and estimate about 25 per cent each year of adjustment. Additionally, Huang and Ritter (2009) find that firms adjust toward target leverage at a moderate speed, with a half-life of 3.7 years for book leverage. In UK, Ozkan (2001) uses partial adjustment model to estimate leverage decision determinants by employing GMM estimation procedure. The results suggest that firms have long-term target borrowing ratios and they adjust to their target ratios relatively for an unbalanced panel of 390 UK firms over the period of 1984–1996. Consistently, in U.S, Dang *et al.* (2012) agree that firms rely heavily on external funds to offset large financing deficits and their higher adjustment speeds may be driven by lower adjustment costs that are shared with the transaction costs of accessing external capital markets. In Istanbul, Arioglu and Tuan (2014) estimate the speed of adjustment for leverage ratios following TOT. The results shows that the speed of adjustment as approximately 29 per cent and it is consistent with the prediction of TOT, which suggests that firms follow target capital structures and when the firms' leverage ratios deviate from these targets. In Thailand, Tongkong (2012) employs dynamic panel regression model using one-step and two-step Arellano and Bond GMM estimation methods in determining the speed of adjustment towards target capital structure. The findings indicate that firm leverage is positively related to median industry leverage for 39 Thai companies in real estate industry listed in the Stock Exchange of Thailand (SET) during the period 2002 to 2009.

In Malaysia, Haron (2014) investigates the existence of target capital structure, speed of adjustment and factors