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Cross-country variations in capital structure adjustment—The role of credit ratings

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ABSTRACT

This paper investigates how cross-country variations in institutional variables affect the relationship between rating changes and firms' capital structure adjustment. Our results demonstrate first that the asymmetric effect exists, that is, firms adjust their capital structure when ratings are downgraded, but do not significantly adjust their leverage ratios when ratings are upgraded. Second, capital structure adjusts faster in countries with better financial development and strong legal and institutional environments than in weak ones, regardless of the upgraded and downgraded rating changes. Hence, the financial development and legal and institutional environments are more crucial in affecting the leverage ratio adjustments than the rating change directions.

1. Introduction

Studying the optimal capital structure between debt and equity and its determinants has been one of the most extensively researched areas in corporate finance. The traditional analysis of the determinants of capital structure has focused on firm characteristics mainly related to the extent of agency costs and asymmetric information (Harris & Raviv, 1991; Jensen, 1986). Recently, one strand of the literature has suggested that credit rating is one of the significant determinants for capital structure decisions. By using US data, Kisgen (2006) showed that firms in the lower and upper ranges of ratings boundaries reduce their leverage relative to firms in the middle of the ratings categories to avoid rating downgrades and achieve upgrades, respectively. Kisgen (2009) showed that firm managers engage in capital structure behavior to target minimum credit rating levels and firms are more likely to reduce their debt following a rating downgrade. Graham and Harvey (2001) found that credit ratings are the second highest concern for financial managers when determining their capital structure, with 57.1% of the managers saying that credit ratings are important or very important in how they choose the appropriate amount of debt for their firms. While credit ratings are found to affect capital structure, empirical studies commonly use US data to investigate this issue.

Another strand of papers argues that capital structure is affected not only by firm-level variables, but also by country-level variables, referring to a firm's legal and institutional environment (González & González, 2008). Rajan and Zingales (1995) argued that although common firm-specific factors significantly influence the capital structure of firms across countries, country-specific factors also play an important role. Demirgüç-Kunt and Maksimovic (1999) compared the capital structures of firms from 19 developed

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countries and 11 developing countries and found that differences in financial and legal institutions affect the use of debt and debt maturity. These conclusions are consistent with the findings of Demirgüç-Kunt and Maksimovic (1996) which suggest that a higher proportion of firms in countries with effective legal systems finance their growth externally. Öztekin and Flannery (2011) spanned 37 countries and found that firms in countries with better institutional quality as a whole adjust their leverage ratio faster than firms in countries with worse institutional quality. Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2001) acknowledged this phenomenon by arguing that knowledge of capital structure obtained from developed countries may be different from those from developing countries because of the institutional structure. Delcoure (2007) found that the factors influencing firms' leverage decisions are the differences and financial constraints of banking systems, the disparity in legal systems governing firms' operations, and the protection of shareholders' and bondholders' rights (see also González and González (2008)). The above studies demonstrate that capital structures are considerably affected by the legal and institutional structure in each country.[1]

This study extends Kisgen's (2009) study by considering cross-country data. Since capital structure is commonly different across countries because of institutional structures, this is plausible in that results obtained from the US may not be the same as those from other countries, especially developing countries. Hence, the derived issues, such as the influence of rating changes on adjustment speed may also be affected by the institutional structures. This makes our study different from previous studies in two respects.

First, the adjustment speed of the capital structure differs between mature and non-mature financial markets. Typically, the transaction cost in a mature financial market is lower than that in a non-mature one. Such a transaction cost focuses on the implicit cost, such as the transparency regulations, there being no hidden rules, there being many people capable of pricing and finding investors, a strong infrastructure, and so on. These factors attract firms to issue debt and equity securities in these markets.[2] Thus, in the mature markets, the benefits from adjusting their leverage ratios have a higher probability of outweighing the costs. When ratings change, firms in the mature markets can adjust their capital structures faster than those of their counterparts in the non-mature markets. Considering that financial markets in many emerging markets are still developing, it is difficult for firms to adjust their leverage ratios in response to the rating changes in these markets immediately.

Next, it is well-documented that the determinants of credit ratings differ in developing and developed countries. One of the reasons is that the financial ratios are more trustworthy in developed countries than they are in developing countries from the viewpoints of raters. Ferri and Liu (2004) found that in developed countries financial ratios can comprise almost all the information content of firm credit ratings, while in developing countries ratings are heavily dependent on sovereign risk and financial ratios play a negligible role. Rojas-Suarez (2001) also found, in regard to the explanation of credit ratings, that financial ratios are more relevant in industrialized countries than emerging markets. Ferri, Liu, and Majnoni (2001) and Vives (2006) also argued that in developing countries credit ratings are mainly explained by sovereign ratings, whereas in developed countries credit ratings are mainly explained by financial information. Thus, the effects of credit rating adjustments could be different from those in countries with different financial development levels and legal and institutional environments. When evaluating credit ratings, financial ratios are more important for firms in developed countries than those in developing countries. Therefore, credit rating adjustments are more likely to affect firms' capital structures in developed countries than in developing countries.

This study attempts to investigate the influence of rating changes on capital structure adjustments from the US case to global practice. Because Kisgen (2006, 2009) only uses US data, he is unable to discuss how a country's financial development level and legal and institutional characteristics affect the relationship between ratings changes and decisions regarding capital structure adjustments. Our study complements his studies by considering the financial development level and legal and institutional factors. Also, we extend the existing capital structure studies using cross-country data by additionally considering the impacts of credit ratings. While Booth et al. (2001), Bancel and Mittoo (2004) and Öztekin and Flannery (2011) consider how institutional factors affect capital structure determinants, they do not consider the influence of credit ratings.

This paper investigates two issues. First, we empirically tests the influence of rating changes on capital structure determinants by using global data and also re-visits the asymmetric influence that the prior literature found. That is, firms tend to adjust the leverage ratio toward the optimal leverage ratio when ratings are downgraded but do not significantly adjust their capital structure when ratings are upgraded. Kisgen (2009) used US samples and found that firms adjust their capital structure toward the optimal capital structure only when ratings are downgraded. Prior studies investigating bond or stock price reactions also found asymmetry to exist between rating upgrades and downgrades (Dichev & Piotroski, 2001; Ederington & Goh, 1998; Griffin & Sanvicente, 1982; Hand, Holthausen, & Leftwich, 1992; Holthausen & Leftwich, 1986). This study re-visits this issue to ensure that the asymmetric results are robust to different sample countries.

Next, we propose the extended asymmetric influence hypothesis, which considers the countries with different financial development levels and legal and institutional compliance. A substantial body of the empirical literature indeed confirms that both the cost of equity and the cost of debt can be affected by the quality of various governance mechanisms (Bhattacharya & Daouk, 2002; Cheng, Collins, & Huang, 2006; Cremers & Nair, 2005; Cremers, Nair, & Wei, 2007; Hail & Leuz, 2004; Rajan & Zingales, 1995). Given that the cost of capital is affected by the country governance and institutional environment, we classify countries into strong and weak governance countries using the medians of the legal and institutional environment indices. In strong governance countries, the financial environment and legal and institutional quality are generally better than in weak governance countries. The strong governance can reduce the transaction cost and financing cost because strong governance countries are usually transparent in terms of their regulations and effectiveness in jurisdiction. Hence, in these countries, firms can more easily obtain financing through the issuance

[1] González and González (2014) and González (2013) also use cross-country samples to investigate the decisions of capital structure.

[2] In the questionnaires surveyed by the Global Financing Center Index in 2010, the respondents replied that the reasons they chose London as the place for issuing debt and equity was because London is strong in terms of people, its business environment, market access and infrastructure.