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Solvency and Liquidity in Shipping Companies

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ABSTRACT

This study examines factors affecting the solvency of shipping firms. The paper uses a panel dataset and employs the GLM and FGLS regression analyses. This study explores the financial structure of top 130 shipping firms provided by the Factiva database during the period between 2009 and 2013. The paper finds that liquidity is closely related to the leverage of shipping companies. The negative association between the asset liquidity and the leverage level implies that there exist conflicts of interest between managers and investors. Shipping firms have a comfortable high liquidity position, but they have a high degree of leverage. They need to take steps to reduce debts. There is evidence of heterogeneity in the determinants of leverage level. The paper also finds that the variables such as profitability, FSIZE, FAGE influence differently the leverage level whether the debt is short-term or long-term.

1. Introduction

Firms experience financial distress when they are illiquid or insolvent. Illiquidity and insolvency effect the capital structure choice. Liquidity measures the capacity of a firm to pay its short-term obligations while solvency related to the capacity to cover a long-term debt. The financial crisis of 2007-2008 is a liquidity event (Cook et al., 2014). The massive contraction of liquidity generated a question of relationship between liquidity and solvency.

The liquidity term also refers to its capability to sell assets quickly to raise cash. A solvent company has a positive net worth and a manageable debt load. On the other hand, a company with adequate liquidity may have enough cash available to pay its bills, but it may be heading for financial disaster. Healthy companies are both solvent and possess adequate liquidity.

A liquidity crisis can arise even at healthy companies if circumstances arise that make it difficult for them to meet short-term obligations. A company-specific liquidity crisis can be resolved relatively easily with a liquidity injection, as long as the company is solvent. Insolvency, however, indicates a more serious underlying problem that generally takes longer to work out, and it may necessitate major changes and radical restructuring of a company's operations. Management of an insolvent company should make tough decisions to reduce debt, such as closing facilities, selling off assets and laying off employees.

Too much debt can be dangerous for a company and its investors. An uncontrolled debt level can lead the firm to go bankrupt. If a company's operations can generate a higher rate of return than the interest rate on its loans, too few debts can also raise questions. The debt can help to increase firm value.

Firms should decide the leverage level which maximizes the firm value (Addae et al., 2013). The issue of capital structure is one of the most polemic problems in financial management field. Theoretical and

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empirical research suggests that there is an optimal capital structure. The search for the optimum capital structure has led to such theories as the trade-off, pecking order, and agency cost theories. These theories provide some insights in understanding how the chosen financing mix affects the firm's value.

Shipping industry is characterized by its high asset tangibility. A shipping firm's expected financial distress costs are low as compared to an intangible asset dependent firm. Thus, shipping firms could rely on debt in the form of bank loans. Shipping firms maintain a high level of leverage ratios. Large shipping firms recently have begun to use the capital markets (Merikas et al., 2009). However, there are a few researches (e.g. Drobetz et al., 2013) with respect to the capital structure of shipping firms.

This study examines factors affecting the solvency of shipping firms. The paper uses a panel dataset and employs the GLM and FGLS regression analyses. It is common to find heteroscedasticity and autocorrelation in the data. The generalized linear model and feasible generalized least square are better suited methodologies to take these problems into account. The remainder of this study is organized as follows: Section 2 provides the literature review of factors affecting the leverage level of firms. Section 3 contains a detailed data description and summary statistics. The results of empirical study are reported and discussed in Section 4. Finally, Section 5 offers concluding remarks.

2. Literature Review

The trade-off theory posits that capital structure choices are determined by a trade-off between the benefits and costs of debt (Kraus and Litzenberger, 1973). The trade-off theory states that every company attempts to maximize benefits and minimize its costs. The theory assumes the existence of an optimal leverage ratio based on market imperfections such as taxes, financial distress costs.

The pecking order theory is based on asymmetric information between firm insiders and outsiders (Myers and Majluf, 1984). A firm's capital structure is the result of its financing requirements over time and its attempt to minimize adverse selection costs (Drobetz et al., 2013). The pecking order theory ranks financing sources according to the degree they are affected by information asymmetry. Firms prefer retained earnings as their main source of funds, then debt, and the last is an external equity financing. In the world with asymmetric information, firms should issue new shares only if they have extraordinary profitable investments that cannot be postponed or financed by debt or if the top manager considers the shares are overvalued (Alzomaia, 2014).

From the agency cost perspective, firms need to evaluate the agency costs of debt, which arise from underinvestment and asset substitution. Although increased leverage mitigates the agency costs of equity, it exacerbates bondholder-shareholder conflicts (Drobetz et al., 2013). Equity holders are not willing to invest when a firm's leverage increases. Equity holders know that they bear the costs of investment but receive a part of the benefit, and the rest accrues to bond holders. The decision on which source of financing will be chosen by firms reflects conflicts among managers, equity holders and debt holders.

Sunder and Myers (1999) stated that the choice of capital structure among internal cash flow, debt and equity reflects the cost of funds. The less costly funds would be internal cash, followed by debt, and finally, equity. Leveraging is a way to cope with a demand for funds when the internal cash flows are not enough to finance new investment opportunities.

Drobetz, Gounopoulos, Merikas, Schroder (2013), investigate the determinants of capital structure decisions using a sample of 115 listed shipping companies. They test whether listed shipping companies follow a target capital structure. They find that shipping companies exhibit higher leverage ratios and higher financial risk. Standard capital structure variables exert a significant impact on the cross-sectional variation of leverage ratios in the shipping industry.

2.1. *Liquidity*

The liquidity measures a company's ability to pay off its current liabilities (payable within one year) with its current assets such as cash, accounts receivable and inventories. The higher the ratio, the better the company's liquidity position. The relationship between liquidity and leverage can have two possible forms. First, more levered firms want to reduce the risk of financial distress (Loncan and Caldeira, 2014).

As the cost of amortization plans of debt is likely to be a burden for the firm, they could hold higher quantity of cash. On the other hand, the leverage ratio is a proxy for the credit status of a firm or its ability to issue debt, higher leverage can be associated with lower cash holdings. As asset liquidity increases, the costs of default drop, and investors are more likely to use debt to obtain information about the company. The expected costs of default are balanced against the benefits of debt (Sibilkov, 2009).

Myers and Rajan (1998) state that managers of firms with greater asset liquidity are likely to transform firm assets and expropriate value from investors. Outside investors of firms with greater asset liquidity can exercise control over managers, by liquidating the firm. Conflicts of interests arise between managers and outside investors when firm increases asset liquidity. The conflict may be resolved by limiting managers' ability to transform assets and expropriate value. With lower transformation risk, investors face lower expected costs associated with providing funds, which means debt becomes cheaper and gets used more often. Myers and Rajan's (1998) model predicts that in the absence of transformation risk, optimal leverage increases in asset liquidity, whereas in the presence of transformation risk, the relation between leverage and asset liquidity is curvilinear (Sibilkov, 2009).

Morellec (2001) argues that the effect of asset liquidity on leverage depends on whether restrictions are placed on asset disposition. Higher asset liquidity makes asset sales more likely because of the lower costs of selling assets and the higher liquidation values. Imposing restrictions on the firm's assets prevents asset sales and increases expected asset value in liquidation for creditors. Morellec (2001) predicts a positive relation between asset liquidity and leverage when assets serve as collateral for debt contracts and managers have no discretion over those assets, and a negative relation between asset liquidity and leverage when the assets are not tied up as collateral.

Myers and Rajan (1998) hypothesized that asset liquidity increases the costs of managerial discretion. That is, managers can sell assets and divert value from bondholders, and higher asset liquidity makes it less costly to do so. Thus, higher asset liquidity increases the expected value dilution, increases the costs of debt, and causes firms to use less debt. Liquidity is measured as the ratio of current assets to current liabilities, and the direction of its effect on capital structure is allowed to be empirically determined.

2.2. *Growth*

A firm's capital structure is influenced by the growth of the firm. Growing firms have a higher cash flows, then debt financing is replaced by internal funding. The growing businesses face greater risk of bankruptcy in times of financial distress. Growing firms are expected to suffer from higher costs of financial distress (Myers, 1977). The agency theory states that firms with growth trends show exaggerated optimism, thus jeopardizing the interests of creditors (Myers, 1977). Eriotis, Vasiliou, and Ventoura-Neokosmidi (2007) examined how characteristics of firms affect capital structure by using 129 Greek listed firms. They found that