

# Stock Liquidity and Capital Structure – Evidence from Listed Companies

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## Abstract

This research investigates whether and to what extent stock liquidity affects capital structure choices of firms publically listed in the financial markets of both common law countries (represented in UK, US, Australia, and Canada) and civil law countries (represented in France, Italy, Belgium, Germany, Japan, Netherland, Denmark, Sweden, and Norway). Specifically, by applying OLS, fixed effects, random effects, Tobit, GLS regression models, GMM methods (DGMM and SGMM), simultaneous equations, interactive effect, and Markov switching regime approach to a panel of 13 countries from 1987 to 2018.

This research measures capital structure by three measures, namely book leverage ratio, market leverage ratio, and long-term market leverage ratio. It measures stock liquidity by different measures in order to capture all liquidity dimensions. This research tests if the stock liquidity affects debt-equity financing choices in a manner that is consistent with the trade-off, pecking order and market timing theories.

## Introduction

Capital structure decision is determined by macroeconomic variables and microeconomic variables. Stock liquidity is one of the microeconomic variables and rarely has the concept of stock liquidity been applied to corporate finance. Recently, attempts are made to link stock liquidity to capital structure. Therefore, this research intends to examine whether stock liquidity affects significantly the firm's capital structure decision.

## Research Aims and Objectives

This research aims to investigate whether and to what extent stock liquidity affects capital structure. This research might help establish a new determinant of capital structure. Moreover, this research tests three of the capital structure theories namely, the trade-off, the pecking order, and the market timing theories to see which of these theories predicts firms' capital structure in common law and civil law countries. In addition, it investigates whether there is a potential effect of firms' capital structure on stock liquidity. Furthermore, this research examines whether this relationship is robust to different analytical tools.

## Research Questions

This research focuses on the impact of stock liquidity on capital structure. Therefore, this research aims to answer the following four research questions:

1. Does stock liquidity have a significant effect on firms' capital structure?
2. Does the effect of stock liquidity on capital structure vary significantly between common law economies and civil law economies?
3. Does firms' capital structure have a significant effect on stock liquidity?
4. Does stock liquidity affect the capital structure in a manner that is consistent with the trade-off, pecking order, and market timing theories?

## Research Contribution

This research intends to contribute to the existing literature on capital structures and will be vital in filling in the knowledge gaps. This is by investigating the impact of stock liquidity on capital structure and it tries to innovate in four ways.

First, most of the theoretical and empirical capital structure studies use extensively the traditional firm-specific variables to test capital structure. This research contributes to the literature by performing tests on the capital structure using the stock liquidity.

Second, most of the theoretical and empirical capital structure studies use firm-specific variables to test capital structure which may lead to endogeneity issues. In order to reduce the endogeneity problem, some of the previous studies use 2SLS to test capital structure. Moreover, some of the previous studies use the Tobit model to consider truncation of leverage and some of the empirical capital structure studies use the GMM method to consider the dynamic nature of the capital structure. Therefore, this research innovates by using the Tobit model, the GMM method and 2SLS at the same time.

Third, this research will use Markov switching regime approach to study the effect of the financial crisis. Furthermore, it studies the interactive effect of stock liquidity with another explanatory variable on the leverage ratio in order to investigate whether the empirical relation (sensitivity) between stock liquidity and debt level can be affected by other explanatory variables.

Four, most of the theoretical and empirical capital structure studies and particularly those investigating the impact of stock liquidity on capital structure use US data. This research innovates by using data according to legal origins law i.e. common law countries (market-oriented economies) and civil law countries (bank-oriented economies). These two different financial systems have a different size of bond market, different bankruptcy laws, different tax code, and different transparency and investor protection which may have a different impact on capital structure.

## Literature Review

Since the early work of Modigliani and Miller (1958) on capital structure irrelevance, the debate/argument on how managers make capital structure decisions remains one of the most challenging issues in the corporate finance subjects. Some of the researchers who did not accept Modigliani and Miller propositions, suggest some alternative theories to make the debt-equity choices. Those theories include trade-off (static and dynamic), the pecking order, the agency, the market timing, the market microstructure, and the capital structure based on product market interactions theories. Those theories emerge to clarify the rationale behind debt-equity financing choices. Practically, all those theories are based on the Modigliani and Miller propositions, but each theory considers the impact of one or a few of the capital market frictions Modigliani and Miller did not consider.

Stock liquidity could be defined as the ability to trade large quantities quickly at low cost with little price impact. This definition highlights four dimensions to liquidity, namely trading quantity, trading speed, trading cost, and price impact. Thus, stock liquidity could lower capital cost.

Frieder and Martell (2006) and Lipson and Mortal (2009) studied the relationship between stock liquidity and capital structure using US data. They found a negative effect of stock liquidity on leverage ratio.

This research constructs different scenarios to link stock liquidity and capital structure under three capital structure theories, namely the trade-off, the pecking order, and the market timing theories.

## Research Methodology

This part explains the methodology used in this research to answer the above research questions.

Therefore, in order to answer the research questions, this research builds a regression model including a dependent variable, different combinations of explanatory variables (independent variable and control variables). This research uses book leverage ratio, market leverage ratio, and long-term market leverage ratio as measures for the dependent variable. Stock liquidity is the independent variable (this research employs nine commonly used measures of stock liquidity to capture the liquidity dimensions). This research chooses firm-specific factors that are significant in previous studies as control variables {i.e. firm size, firm age, profitability, profit volatility, growth opportunities, R&D, current ration, asset tangibility, non-debt tax shield, stock price, ownership and corporate governance variables, dummies (R&D dummy, country dummies, industry dummies, year dummies, financial crisis dummy)}. Then this research applies different static estimation strategies such as fixed effect, random effect, Tobit and GLS regression models to analyse the impact of stock liquidity on the firms' capital structure in those two different financial systems. It uses the Hausman test for the choice of the model between fixed effect and random effects models.

This research also tests the data for multicollinearity, serial correlation and heteroscedasticity, as well as using dynamic estimation strategy of Generalized Method of Moments (GMM) both Difference Generalized Method of Moments DGMM and System Generalized Method of Moments SGMM to check the impact of stock liquidity on dynamics capital structure of firms. It implements simultaneous equations to correct for endogeneity arises from reverse causality. It examines whether corporate governance affects firms' capital structure. Thus, it divides the research sample into two sub-samples. The first sub-sample cover the time period from 1987 till 2002, while the second sub-sample covers the time period from 2003 till 2018. It apply Markov switching regime approach to check whether financial crisis, which took place in 2008, affects the capital structure of firms. It examines an interactive relationship among stock liquidity, other explanatory variables (such as firm size) and leverage to check whether the negative relation between stock liquidity and leverage is stronger/weaker and significant for large/small firms.

