INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 12, Issue 11, (2022) E-ISSN: 2222-6990

# Conceptual Paper: Determinants of Capital Structure for Financially Distressed Firms Classified as Sharia-Compliant

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**To Link this Article:** http://dx.doi.org/10.6007/IJARBSS/v12-i11/15234 DOI:10.6007/IJARBSS/ v12-i11/15234

***Published Date:*** *18* November 2022

**Abstract**

The main objective of this proposed research is to develop a new model in explaining the factors affecting firms' decision with respect to its capital structure. Although there is already abundant amount of literature on this topic, there are some limitations in which work to date can be improved. With regards to the existing literature, two issues have been identified for which improvements can be made: (1) the use of new sample and population – financially distressed firms classified as shariah compliant, and (2) the use of variable selection techniques in deciding the most optimal combination of predictors. The findings of this proposed research should be able to provide the answer to these two important questions: (1) what is the best combination of variables to be included in the final model? (2) how would the selected independent variable affect the firm capital structure decision? The answer to these questions is important as it will enable the management of a firms to design the appropriate capital structure policy and construct a package of financial instruments that need to be sold to investors. This proposed research expected to provide a better understanding of factors affecting capital structure and serve as a guide for future research, policy makers and the regulators in formulating the best policies, rules, and regulations to support the firms, especially financially distressed and shariah complaints firms with regards to their capital structure.

**Keywords:** Capital Structure, Shariah-Compliant Firms, Financially Distressed Firms, Feature Selection, Vselect

## Introduction

Capital structure theory was initiated by (Modigliani and Miller, 1958). This theory is considered as one of the most vital subjects in finance and it has called the attention of many researchers that have being, mostly, developing empirical or theoretical studies (Almaqtari et al., 2019; Saif-Alyousfi et al., 2020; Bui & Nguyen, 2021). One of the main objectives of a study on capital structure is to identify factors explaining the firms' decision with respect to its financial leverage. The firm's choice of capital structure is likely to be determined by a

combination of factors that are related to the characteristics of the firm, institutional environment as well as economic environment. Capital structure determinants have been discussed for many years and still represent one of the main unsolved issues in the corporate finance literature. Many academic studies and much empirical research have tried to address this issue (Abdullah & Tursoy, 2021; Chadha & Seth, 2021; Ngatno et al., 2021), but there is not yet a fully supported and unanimously accepted theory. Indeed, what makes the capital structure debate so exciting is that only a few of the developed theories have been tested by empirical studies and the theories themselves lead to different, not mutually exclusive, and sometimes opposing results and conclusions. With the view of understanding factors affecting capital structure, following the pioneering work of pioneer researchers such as Modigliani and Miller (1958); Miller (1977), academic researchers have been using different samples, set of variables, and numerous estimating procedures. The analysis of prior research on this topic leads to the discovery of two issues. First issue is on the disagreement on the determinants of capital structure. The findings of previous studies (see for example: Almaqtari et al., 2019; Ngatno et al., 2021) suggest that the choice of capital structure combination is consequence of many factors such as firm size (Hoque & Liu, 2021; Javaid et al., 2021), liquidity (Bukair, 2019; Bolarinwa & Adegboye, 2020; Zeitun & Goaied, 2021), profitability (Bolarinwa & Adegboye, 2020), interest rate (Kahya et al., 2020), EBITDA (Bolarinwa & Adegboye, 2020). The variables used by the previous researchers are selected based on their significance in specific theory, policy, or both. But as researchers disagree on which variable is the most important, it is usually only partial overlap among the variables considered in different empirical papers. Therefore, it is very important to investigate which of the independent variables suggested in the literature should be included in the final model. In this proposed research, to generate more robust result, final list of variables to be included in the final model will be determined by using the variable selection technique “vselect” as suggested by (Lindsey, 2014). Second issue is on the choice of population and sample used in the analysis. Previous studies have been conducted on a sample of firms from different sectors such as banking (Hoque & Liu, 2021; Kahya et al., 2020), hotel (Bolarinwa & Adegboye, 2020; Javaid et al., 2021; Zeitun & Goaied, 2021), oil and gas (Bolarinwa & Adegboye, 2020; Javaid et al., 2021) and trading and services (Bolarinwa & Adegboye, 2020). A major shortcoming of capital structure studies is that they generally restrict their analysis to conventional and healthy companies. Hence, there is very little evidence on shariah compliant and financially distressed firms. The central features of the Shariah compliant securities are the prohibition of activities that involve interest (riba), gambling (maisir) as well as uncertainties and speculative trading (gharar). This prohibition will certainly affect its decision with regards to its choice of capital. Despite the importance of understanding the capital structure decision of shariah complaint firms, scarce effort has been accorded to the financing behavior of firms which operate under Islamic principles. Consequently, our understanding of corporate financing decisions remains incomplete, particularly in respect of the use of Islamic financing instrument (Guizani, 2020). In addition, we know a little about the applicability of various capital structure theories on firms that are financially distressed and classified as shariah compliant. This study will enable us to know whether the nature of the firms (financially distressed and shariah-compliant) would affect the decision of the companies with regards to their capital structure. In this proposal, we contend that the determinants of capital structure for the sample firms will be different due to its unique firm (financially distressed and shariah compliant) and country specific characteristics, hence, empirical findings from other research cannot be generalized to this study sample.

## Literature Review

Theories of capital structure Theoretical debate about financial distress costs, which is an important part of the trade-off theory (Korteweg, 2010) is rooted in the study of capital structure decision (Pindado et al., 2008). The decisions (capital structure), involves the selection of debt and equity securities in a balanced proportion, taking into consideration the different costs and benefits coupled with these securities. Research conducted by Modigliani and Miller (1958) is said to be the milestone among the capital structure studies (Mustapha et al., 2011) and inarguably, laid down the foundations for modern corporate finance (Cohen, 2004). In the following sections, the theory of capital structure will be briefly explained and discussed.

## The Miller-Modigliani Theorem

In their path-breaking paper in 1958 Nobel laureates Merton Miller and Franco Modigliani provided the formal proof of their famous M&M irrelevance proposition. This proposition stated that in complete and perfect capital markets, the total value of firm is independent of its capital structure. An optimal capital structure does not exist when capital markets are perfect. They demonstrate that there would be arbitrage opportunities in perfect capital markets if the value of a firm depended on how it is financed. They also argue that if investors and firms can borrow at the same rate, investors can neutralize any capital structure decisions the firm's management may take (home-made leverage). Modigliani and Miller in their original articles Miller and Modigliani (1958a) and (1958b) assume several strict constraints. Later, others such as Stiglitz (1974); Merton (1990) have removed the assumptions of risk class. Myers (1984) said that lifting these restrictions, one at a time, start possible causes for the capital structure puzzle. While the M&M capital structure irrelevance theorem clearly rests on unrealistic assumptions, it can serve as a starting point to search for the factors that influence corporate leverage policies.

## The Trade-off Theory

Under the trade-off theory framework, a company is viewed as setting a target of debt equity ratio, by balancing off the corporate tax saving advantage of debt against the cost of using debt (Ahmed & Hisham, 2009; Reimund et al., 2003) and gradually moving toward it (Reimund, et al., 2003). This indicates that some form of optimal capital structure exists that can maximize the firm value (Ahmed & Zongjun, 2011). This theory asserts that there is a trade-off between advantages and disadvantages associated with debt financing, which leads to the existence of an optimal mix of debt and equity.

## Pecking Order Theory

Myers and Majluf (1984) suggest that the capital structure can help to mitigate inefficiencies in a firm's investment program that are caused by information asymmetries. The information costs associated with debt and equity issues has led Myers (1984) to argue that a firm's capital structure reflects the accumulation of past financial requirements. There is a pecking order of corporate financing: (i) firms prefer internal finance; (ii) if internal finance is not sufficient and firms require external finance, they issue the cheapest security first. In this case, they start with debt, then possibly hybrid securities such as convertible bonds, and issue equity only as a last resort.

## Methodology

*Description of Methodology*

The objective of this proposed research can be achieved following these four steps: (1) initial setup and data collection, (2) data cleaning and preliminary data analysis, (3) model development, and (4) model evaluation.

### Stage 1: Initial Setup and Data Collection

The main objective of this step is to determine the list of firms and variables to be included in the study.

*a. Description of the Sample*

Following the literature, this proposed research will define the financially distressed firms as the firms that classified as affected issuers under the requirement of Practice Notes 4, 17 and Amended Practice Notes 17 of Bursa Malaysia. The list of firms classified as shariah-compliant will be taken from the list of shariah compliant securities approved and updated by the Shariah Advisory Council (SAC) of the Securities Commission Malaysia (SC) dated 27 November 2020. Following the literature, any banking, financial institutions, insurance firms will be excluded from the analysis.

*b. Description of the Variables*

To remain consistent with previous studies, measures pertaining to the dependent variables and the determinants of capital structure will be taken from reviewing and following the suggestions made by the previous studies. The variables are categorized into three different categories: (1) traditional variables, (2) new variables / proxy, and (3) institutional and economics variables. The final list of variables to be included in the study will be based on the result of the variable selection procedure.

*c. Data Collection Procedures*

This proposed research will be using secondary data. Financial data of the companies will be extracted from the published annual reports obtained from the Bursa Malaysia's website and online databases such as DataStream and Eikon. The period of analysis covers five financial years prior to the year of classification as affected issuers, identified t-1, t-2, t-3, t-4, and t-5 respectively. t-1 refers to the most recent financial year end before the sample was classified as affected issuers. The output of this stage is the initial list of firms and variables for the study.

### Stage 2: Data Cleaning and Preliminary Data Analysis

The main objective of this stage is to check the data availability and validity. The output of this stage is the final data ready to be analyzed.

### Stage 3: Model Development

The main objective of this stage is to analyze the data and to come out with the model explaining the capital structure decision of firms. The proposed data analysis procedures will be divided into four steps. The first step is to determine the most optimal combination of predictors. In this study, Stata command, *vselect*, developed by Lindsey and Sheather (2010) will be employed to determine whether certain variable should be included in the model. Following Lindsey and Sheather (2010), optimal model is defined as one that optimizes one

or more information criteria. Those criteria are Mallow's Cp (C), Adjusted R2 (R2ADJ), Akaike's information criterion (AIC), Akaike's corrected information criterion (AICC), and Bayesian information criterion (BIC). This research used the definitions of these criteria given in (Sheather, 2009). Generally, higher variance explained by the model R2ADJ and lower C, AIC, AICC and BIC values indicate the best fitting model (Lindsey & Sheather, 2010). The second step is to choose the most appropriate panel data estimator. The two available alternatives for analyzing micro panel data are static and dynamic techniques. In this thesis, the main criterion for choosing between the two alternatives is by looking at the coefficient of the lagged dependent variable. The significance of the lagged dependent variable (p-value < 0.05) will indicate the need to go for dynamic model, as it (dynamic model) is more appropriate and useful when the dependent variable depends on its own past realizations (Brañas-Garza et al., 2011), otherwise static model is to be preferred (p-value > 0.05). The third step is to choose the most appropriate static or dynamic panel data analysis technique. The choice of the most appropriate static technique depends upon three types of tests as suggested and outlined by (Park, 2011). The tests are F-test, Breusch-Pagan Lagrange Multiplier (BP-LM) test, and Hausman test. For dynamic model, System Generalized Method of Moment (SGMM) is preferred against Difference Generalized Method of Moment (DGMM). The fourth and final step is to perform the diagnostic tests and to find the correct strategy to rectify the problem(s) identified (if any).

**Stage 4: Model Evaluation**

This is the final stage of this research. The main objective of this stage is to evaluate the model produced from the previous stage. Specifically, this is where the model will be examined for the differences or similarities and to provide the detail explanation on the findings

**Conclusion**

The aim of this paper is to propose a study on the determinants of capital structure for financially distressed firms classified as shariah compliant in Malaysia. This proposed study is novel and original in three ways: (1) the use of more comprehensive list of variables & the inclusion of new independent variables, (2) the use of variable selection technique in determining the most optimal model and (3) the use of new sample of population. At the end of this research, this study will contribute to the (1) development of a new capital structure determinants model for model for financially distressed firms classified as shariah compliant in Malaysia, and (2) new empirical findings and knowledge with regards to the effect of various variable selection techniques on the most optimal model explaining capital structure. All in all, the new model and the techniques applied in this research might change the landscape in understanding the factors affecting capital structure decision and serve as a guide for future research.

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