

EXAMINING SYSTEMATIC RISK ON MALAYSIAN FIRMS: PANEL DATA EVIDENCE

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Abstract

This study is motivated by the issue of inconclusiveness in the literature pertaining to the impact of firm specific variables towards the systematic risk, with a specific focus given on the financial leverage and firms' financing policies. By employing panel data and Fixed Effect Model (FEM), this study examines comprehensively the determinants of systematic risk of 824 non-financial listed firms in Malaysia, for the period of fourteen years, from 2000 until 2013. To gain an inclusive understanding on the systematic risk, inter-industry variations is also investigated using the FEM. Overall findings reveal that financial leverage is the most significant variable influencing the systematic risk of Malaysian firms. Other controlling variables are not found to be significant. However, interestingly, results from the inter-industry analysis shows different views with some significant impact from other firm specific controlling variables for certain industries. Findings from this study add to the literature on systematic risk, especially on the inter-industry differences in relation to the factors influencing the firms' exposures to the systematic risk.

Keywords: Systematic Risk; Leverage; Firm Specific Factors; Inter Industry

2016 GBSE Journal

Introduction

The nature of the systematic risk itself demands great attention of investors, managers and researchers in finding ways to understand and manage this type of risk effectively. This is highlighted by Baird and Thomas (1990), who stress that a firm's primary long run objective is to deal with uncertainty or known as risk. Therefore, it is crucial for managers to assign substantial efforts in developing strategies to deal with systematic risk, rather than unsystematic risk. Similarly, Brigham (2013) stresses the importance of managing the internal financial management in order to deal with the systematic risk. The only risk remains after minimization of unsystematic risk through diversification is the systematic risk of the firms (Megginson, 1997). Most of the early studies and literatures in the field of finance focus on the development of different econometric and statistic models and measures of systematic risk, which is followed by numerous empirical investigations carried out on comparing the relevance and appropriateness of the different measures in various market segments around the world. Beginning with the exploration on the measures of systematic risk in the early stage, literatures have moved towards understanding the nature of the systematic risk itself by investigating the various factors affecting the level of systematic risk

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exposures, including those which are related to firms' managerial decisions, i.e. operating, financing and investing decisions (Lee and Jang, 2007).

In the finance literature however, despite the plenteous amount of research being carried out on the various perspectives of systematic risk, understanding on the area is still inconclusive, hence a mutual consensus has not been reached (Borde, 1998; Kim et al. 2002; Gu and Kim, 2002; Lee and Jang, 2007). Those studies provide mixed results with unclear conclusions to the specific financial variables that can be classified as the determinants of the systematic risk. Moreover, while many studies have investigated on how different firm specific characteristics affect the systematic risk of the listed companies around the world, most of these literatures had been focusing on the whole market in general or a specific industry such as restaurant industry (Kim and Gu, 2003), manufacturing (Aruna and Warokka, 2013), airlines (Lee and Jang, 2007; Hooy and Lee, 2010), hotel (Gu and Kim, 1998) and casino (Rowe and Kim, 2010). It is apparent from literatures that the conclusion varies when different industries are examined. Both, the nature and significance of the relationships of the identified firm specific factors or determinants differ across industries. To date, none of the studies in relation to the systematic risk has been carried out extensively in comparing the risk determinants and exposures across different industries within a specific market.

In response to the above matters, this study provides a comprehensive viewpoint on the determinants of systematic risk for firms in Malaysia with specific attention given on the different industries within the Malaysian market. Findings from this study add to the literature on the inter-industry differences in relation to the feature or behaviour of the systematic risks and the contributing factors or determinants. Apart from the various firm specific characteristics or accounting variables, this study specifically focuses on the relationship between capital structure decisions, i.e. financial leverage and systematic risk.

Data and Methodology

The panel data set in this study comprises of 824 non-financial firms in Malaysia, for the period of fourteen years from 2000 until 2013. This study estimates the systematic risk (beta) model with a set of firm specific, explanatory variables for overall sample as well as for seven Malaysia industries including (i) Industrial Products (ii) Trading/Services (iii) Consumer Products (iv) Technology (v) Properties and Construction (vi) Plantations (vii) Others. Generally, the regression model for this study is as follows.

$$Y_{i,t} = \beta_0 + \beta_1 \text{Leverage}_{i,t} + \beta_2 \text{Size}_{i,t} + \beta_3 \text{Liquidiy}_{i,t} + \beta_4 \text{Profitability}_{i,t} + \beta_5 \text{OperatingEfficiency}_{i,t} + \beta_6 \text{Growth}_{i,t} + \varepsilon_{it}$$

This study employs the panel data approach with Stata 12 to estimate the parameters of interest. Unbalanced panel data is utilized due to the different listing dates of firms within the study period of 2000-2013. Through several model specification tests, the robust model that is the most appropriate for this study is identified among the three alternative panel analysis models, i.e. Pooled Ordinary Least Square (POLS), Fixed Effect Model (FEM) and Random Effect Model (REM). Accordingly, this study employed all the three tests, namely the Chow Test, Breusch and Pagan Lagrangian Multiplier Test (BP-LM) and Hausman Test in selecting the most appropriate model for the sampled 824 firms in Malaysia. Table 1 below provides a summary of the three tests and it is apparent here that FEM is the most appropriate model for our data set that can best estimate the extent to which the firm specific factors are influencing

the systematic risk of the Malaysian firms. Further discussions on the findings are based on the chosen robust method (FEM). The results are segregated into two parts, full sample analysis and inter-industry analysis.

Table 1: Results for the robust model

Chow Test	BP LM Test	Hausman Test
Reject H_0	Reject H_0	Reject H_0
FEM better than POLS	REM better than POLS	FEM better than REM
F-stat = 3.22***	Chibar2 = 1886.8***	Chi2 = 106.5***
		Robust Model: FEM

Analysis and Findings

Full sample analysis³ indicates that financial leverage does significantly and positively influence the level of systematic risk for the Malaysian firms. This is an interesting result since it supports the first hypothesis of this study ($H1$) and is also consistent with the numerous literatures that are carried out till date on the relationship between capital structure and systematic risk. Early study by Hamada (1972) initiated the work on this issue. He finds a positive and significant influence of leverage on systematic risk. Generally, this finding can be attributed to the Trade of Theory of capital structure, where firms with excessive amount of leverage are said to be more exposed to the risk of financial distress and bankruptcy.

It is interesting to note that, besides leverage, none of the other firm specific variables are reported to be significantly influencing the systematic risk. This is in line with a study by Aruna and Warokka (2013) that investigated 15 top and most traded Indonesian manufacturing firms. The study reveals that none of their accounting variables were found to be significantly influencing the systematic risk. All in all, this study concludes that, for the full sample analysis, leverage dominates over any other firm specific variables in explaining the behaviour of systematic risk.

Surprisingly although leverage is reported to be significant and positively affecting the systematic risk in the full sample analysis, inter-industry analysis reveals different result as only one out of the seven industries indicate leverage as a significant determinant to the systematic risk. Leverage is found to be positively significant for the plantation industry only, hence supporting the first hypothesis ($H1$). Although the impacts of leverage on systematic risk for other industries are insignificant, their coefficients are consistently positive across those industries. This rather strengthens the positive relationship between leverage and systematic risk as hypothesized in this study. This unanticipated result postures a puzzle on the linkage between capital structure and systematic risk.

For other firm specific variable, i.e. firm size, liquidity, profitability, operating efficiency and growth, FEM shows significant result with inconsistencies across the different industries, thus supporting the second hypothesis of this study ($H2$). The variation is not only in term of the significance, but also in the direction of the relationship between those variables and the systematic risk. This result differs relative to the full sample analysis, where none of the firm

³ Seven industries included: Industrial Products, Trading/Services, Consumer Products, Technology, Properties and Construction, Plantation and Others.

specific variables, except leverage, were found to be significantly influencing the systematic risk. For the inter-industry analysis, despite the mixed results, firm size and profitability are reported to be relatively dominant in influencing the systematic risk. Results of the full sample as well as industry variations are summarized in Table 2 below.

Table 2 Summary of findings

Hypothesis	Full Sample	Inter-Industry
<i>H1</i> Financial leverage is positively related to systematic risk	Supported	Plantations only
<i>H2</i> Inter-industry differences exist in the relationship between systematic risk and its determinants	-	Supported
Controlling Variables		
Size is positively related to systematic risk	Not supported	Properties & Construction Consumer Products* Plantations*
Liquidity is positively related to systematic risk	Not supported	Plantations
Profitability is negatively related to systematic risk	Not supported	Others Consumer Products* Technology*
Operating efficiency is negatively related to systematic risk	Not supported	Properties & Construction*
Growth is positively related to systematic risk	Not supported	Plantations

Conclusion

This study provides input to policy makers on the important of leverage policy and how this policy is affecting the systematic risk of the firms. The inter-industry analysis also provide useful information to policy makers that industry variations should be taken into consideration seriously instead of generalizing a market as a whole for any decisions or actions.

At the firm level, management should ensure that the significant firm specific variables as identified in this study are managed efficiently as these variables are having significant impact towards the systematic risk of their firms, especially for specific industries. Managing these variables will also contribute in enhancing value of the firms since systematic risk has a direct impact on stock and company valuation. These can help managers to take the necessary initiatives accordingly in relation to their firms' financing decision with the objective of value maximization.

Since this study has highlighted the need to examine industrial variations pertaining to the determinants of systematic risk, it is highly suggested that future works will be carried out in a similar pattern in different market, probably within the ASEAN markets. Comparison can also be made between similar industries but across different countries. Greater information and interesting findings are expected from such rigorous and extensive research approach. Further studies on the different industries will enhance shareholders' understanding of the industry hence facilitate their investment decisions.

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