THE EFFECT OF FIRM-SPECIFIC FACTORS ON SYSTEMATIC RISK ACROSS VARIOUS INDUSTRIES IN ASEAN-5 COUNTRIES: PANEL DATA EVIDENCE

BY

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ABSTRACT

By nature, systematic risk cannot be diversified away. Systematic risk plays an important role in determining the expected return of investment and firms' value. The firms' value may increase by reducing systematic risk. Hence, firms' stability may be at stake when systematic risk is high. Previous studies found firm-specific factors affected systematic risk in both local and international firms. This finding supports the idea that managerial financial decisions affect firm performance, which in turn influences systematic risk. Although the systematic risk is regarded as an external factor beyond the control of firms, it can be changed based on the managerial decision adopted. Numerous studies have examined the effect of firm-specific factors on systematic risk but the results are inconclusive. Prior studies merely examined a particular country or a specific industry in a single empirical study, which findings could not capture and explain the behavior of systematic risk across industries and countries. Therefore, the key factors affecting firm systematic risk across countries and industries remain an open empirical investigation. The issue of inconclusiveness and inconsistency in the literature about the effect of firm-specific factors on systematic risk motivated this study to investigate the firm-specific factors affecting systematic risk of non-financial firms across various industries in ASEAN-5 from 1997 to 2016. This study also examines the impact of the 1997 Asian financial crisis and 2008 global financial crisis on systematic risk. Using panel data regression analysis, the result shows that financial leverage is positively related to systematic risk in ASEAN-5 firms except for Singapore, thus supporting the first hypothesis. Moreover, liquidity and profitability are significantly associated with systematic risk in Malaysian firms while profitability and firm size are the main firm-specific factors affecting systematic risk in Singaporean and the Philippines firms. Similar to Malaysian firms, Thai firms with high liquidity have high systematic risk. The findings vary across industries and countries, suggesting that systematic risk behaves differently depending on the type of industry and country. In Malaysia, profitability is the only significant determinant of firm systematic risk across various industries. Meanwhile, the findings vary across industries in other ASEAN-5 countries. Next, the 1997 Asian financial crisis and 2008 global financial crisis increased the systematic risk of non-financial firms in Malaysia, Singapore, and Thailand; hence supporting the seventh and eighth hypotheses, while only the 2008 global financial crisis affected the systematic risk of Indonesian firms. The 1997 Asian financial crisis and 2008 global financial crisis affected the systematic risk of Thai firms across all industries. The findings on other ASEAN-5 countries are inconsistent across industries. This study primarily highlighted the important role of firm-specific factors affecting firm systematic risk. Understanding the determinants of firm systematic risk across different countries and industries is vital because systematic risk affects the return on investment and firms' value. Further, the findings could shed some light on managing systematic risk by controlling firm-specific factors during a financial crisis and normal economic conditions.

خلاصة البحث

تلعب المخاطر المنتظمة دورا مهما في تحديد العائد المتوقع للاستثمار وقيمة الشركات، وهي بطبيعتها غير قابلة للتنويع. وقد تزيد قيمة الشركات عن طريق تقليل المخاطر المنتظمة. وعليه، قد يكون استقرار الشركات على المحك عندما تكون المخاطر المنتظمة عالية. قد وجدت الدراسات السابقة أن العوامل الخاصة بالشركة أثرت على المخاطر المنتظمة في كل من الشركات المحلية والدولية. تدعم هذه النتيجة فكرة أن القرارات المالية الإدارية تؤثر على أداء الشركة مما يؤثر بدوره على المخاطر المنتظمة. وعلى الرغم من اعتبار المخاطر المنتظمة عاملاً خارجياً فوق سيطرة الشركات، إلا أنه يمكن تغييرها بناءً على القرار الإداري المعتمد. قد أجريتْ العديد من الدراسات حول تأثير العوامل الخاصة بالشركة على المخاطر المنتظمة ولكن النتائج غير حاسمة. وقد تناولت الدراسات السابقة بلدا معينا أو صناعة معينة فقط في دراسة تجريبية واحدة، والتي لم تستطع النتائج التقاط وشرح سلوك المخاطر المنهجية عبر الصناعات والبلدان. وهكذا تظل العوامل الرئيسية التي تؤثر على المخاطر ا المنتظمة الثابتة عبر البلدان والصناعات قيد التحقيق التجريبي المفتوح. قد دفع عدم الحسم والاتساق في الدراسات حول تأثير العوامل الخاصة بالشركة على المخاطر المنتظمة هذه الدراسة للتحقيق في العوامل الخاصة بالشركة التي تؤثر على المخاطر المنتظمة للشركات غير المالية عبر مختلف الصناعات في آسيان -5 (ASEAN-5) من 1997 إلى 2016. وتبحث هذه الدراسة تأثير الأزمة المالية الآسيوية لعام 1997 والأزمة المالية العالمية لعام 2008 على المخاطر المنتظمة باستخدام تحليل انحدار البيانات (panel data regression analysis)، وتظهر النتيجة أن الرافعة المالية مرتبطة بشكل إيجابي بالمخاطر المنتظمة في شركات ASEAN-5 باستثناء سنغافورة، وبالتالي تدعم الفرضية الأولى. ومن ناحية أخرى، ترتبط السيولة والربحية بشكل كبير بالمخاطر المنتظمة في الشركات الماليزية بينما الربحية وحجم الشركة هما العاملان الرئيسيان المحددان للشركة والتي تؤثر على المخاطر المنتظمة في الشركات السنغافورية والفلبينية. وعلى غرار الشركات الماليزية، فإن الشركات التايلاندية ذات السيولة العالية لديها مخاطر منتظمة عالية. اختلاف النتائج باختلاف الصناعات والبلدان يثير إلى أن المخاطر المنتظمة تتصرف بشكل مختلف بناءً على نوع الصناعة والبلد. في ماليزيا، الربحية هي المحددة الوحيدة المهمة للمخاطر المنتظمة للشركة في مختلف الصناعات. وفي الوقت نفسه،

تختلف النتائج عبر الصناعات في دول آسيان -5 الأخرى. وبعد ذلك، أدت الأزمة المالية الآسيوية عام 1997 والأزمة المالية العالمية لعام 2008 إلى زيادة المخاطر المنتظمة للشركات غير المالية في ماليزيا وسنغافورة وتايلاند؛ ومن ثم تدعم الفرضيتين السابعة والثامنة. وفي الوقت نفسه، فإن الأزمة المالية العالمية لعام 2008 فقط هي التي أثرت على المخاطر المنتظمة للشركات الإندونيسية. أثرت الأزمة المالية الآسيوية عام 1997 والأزمة المالية العالمية لعام 2008 على المخاطر المنتظمة للشركات التايلاندية في جميع الصناعات. والنتائج على دول الآسيان 5 الأخرى غير متسقة عبر الصناعات. قد سلطت هذه الدراسة الضوء في المقام الأول على الدور المهم للعوامل الخاصة بالشركة التي تؤثر على المخاطر المنتظمة للشركة. ويعد فهم محددات المخاطر ا المنتظمة للشركات عبر مختلف البلدان والصناعات أمرًا حيويًا لأن المخاطر المنتظمة تؤثر على العائد على الاستثمار وقيمة الشركات. وعلاوة على ذلك، يمكن أن تلقي النتائج بعض الضوء على إدارة المخاطر ا المنتظمة من خلال التحكم في العوامل الخاصة بالشركة أثناء الأزمة المالية والظروف الاقتصادية العادية.

APPROVAL PAGE

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DECLARATION

I hereby declare that this dissertation is the result of my own investigation, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Vilayphone Vongphachanh

Signature  Date …07/09/2022…

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This dissertation is dedicated to

My beloved husband Phouvanh Silaphone

My beloved Children, Nada Vongphachanh, Anas Vongphachanh, and Aleena Vongphachanh

And my beloved parents, Bounheung Vongphachanh and Bounlieng Vongphachanh

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LIST OF ABBREVIATION

CAPM	Capital Asset Pricing Model
IRR	Interest Rate Risk
PR	Price Risk
MR	Market Risk
C/ER	Currency/Exchange Rate Risk
CR/PR	Country Risk / Political Risk
IR	Inflation Risk/Purchasing Power Risk
BR	Business Risk
LR	Liquidity Risk
FR	Financial Risk
DCR	Default/Credit Risk
MM	Modigliani and Miller
GDP	Gross Domestic Product
SET	Stock Exchange of Thailand
JKSE	Jakarta Stock Exchange Composite Index
STI	Straits Time Index
KLSE	FTSE Bursa Malaysia KLCI Index
PSEi	The Philippines Stock Exchange Index
BP-LM	Breusch and Pagan-Lagrange Multiplier
FEM	Fixed Effect
REM	Random Effect
OLS	Ordinary Least Squares
VIF	Variance Inflation Factor

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The nature of any investment always involves risk. Risk is an uncertainty that an investment's actual return is less than its expected return, the higher the risk is, the higher will be the return. Basically, there are two types of risk which are unsystematic risk and systematic risk. Unsystematic risk is a specific risk to a firm that caused by random events such as labor strikes, poor marketing programs, mismanagement, a change in regulation, and so on. It is a micro factor that affects only a particular firm and can be eliminated through efficient diversification. Unsystematic risk is also known as a unique risk, residual risk, or diversifiable risk. In contrast, the systematic risk is a stock risk correlated to the market portfolio risk that cannot be avoided or diversified away and it affects the market as a whole. Example of systematic risk includes macroeconomic factors such as inflation, foreign exchange rate, interest rate, and other factors that are beyond the confines of the organization's system (Gitman & Zutter, 2012; Parthasarathy, 2019; Zeng & Chen, 2019, Qiu et al., 2020).

Between these two types of risk, the most concern for investors and firm managers is systematic risk. It is the only risk that remains affecting the stock value since unsystematic risk can be diversified away. Investors and managers have played more attention to finding ways to understand and manage this type of risk since it is considered as the main factor affecting their investment (Baird & Thomas, 1990; Gu & Kim, 2002; Alaghi, 2013; Fahad et al., 2020; Safira, 2020, Nizam et al., 2020).

Systematic risk results from external factors that cannot be avoided and minimized through diversification. Indeed, researchers are more concerned about the ability to predict

systematic risk in future financial instability (Allen, Bali, & Tang, 2012; Fahad et al., 2020, Nizam et al., 2020). Therefore, there is a need for studies that can provide a better understanding of this type of risk in various industries across different countries. These studies may assist policy makers, firm managers, and investors to have a good understanding of systematic risk and know how to deal with it. It seems to be true that one of the goals for doing investment is to maximize profit by reducing systematic risk. Thus, firms' managers need to understand the nature and sources of this risk to develop new strategies for dealing with it (Iqbal & Ali Shah, 2012; Ibrahim & Haron, 2016).

Previously, numerous studies have been focusing primarily on the development of different models to measure systematic risk. One of the popular models widely used is the Capital Asset Pricing Model (CAPM) (Parthasarathy, 2019). Based on the CAPM, systematic risk affects the firm value and the expected return on investment (Hooy & Lee, 2010; Nguyen, 2019). The measure of the systematic risk is based on beta (β), where β is presented as a stock return volatility that is related to the market return (Xing & Yan, 2018).

Al-qaisi (2011) stated that the CAPM is considered as the heart of the financial domain due to its popular use in finance and portfolio management, as it is very helpful in estimating the expected return on investment. In contrast, Gahlon and Gentry (1982) argued that the CAPM has shown only the necessary equilibrium association of prices against securities given their stochastic over the period of time, and at the same time, is not a meant for estimating the beta on the basis of real variables. Putting it differently, the CAPM is used to estimate the expected return of an investment only, but it does not explain how to estimate β based on the real economic factors.

Lee and Jang (2007) stated that although systematic risk resulted from uncontrollable external factors, the degree of systematic risk can be changed depending on the change in managerial decisions. In other words, managerial decisions on finance, investment, and operation influence financial performances which in turn influence the degree of systematic risk. For example, a decision on an increase in the amount of debt to expand the business might lead to financial distress in the future, hence firms would experience high systematic risk. It means that systematic risk can be explained by firm-specific variables such as financial leverage, liquidity, profitability, firm size, operating

efficiency, firm growth, and others. According to this, it is evident that macroeconomic variables are not only the factors that exert influence on systematic risk, but firm-specific variables do also influence the behavior of systematic risk (Xing & Yan, 2018; Parthasarathy, 2019).

The effect of firm-specific variables on systematic risk is found in several studies. The most potential variables used to influence the systematic risk are known as financial variables (Tandelilin, 1997; Hooy & Lee, 2010; Ibrahim & Haron, 2016; Nawaz et al., 2017; Nizam et al., 2020). For example, firms with excessive leverage would face bankruptcy costs, hence influencing the systematic risk. It is can be said that financial variables are considered to be more affecting systematic risk as many studies have found significant relationships among them. This is because most investment activities such as new project development, capabilities enhancement, new technology requirement, and new operational method adaptation require financial support. Thus, a change in financial decisions can contribute to a change in systematic risk (Alaghi, 2013).

Previously, numerous studies used firm-specific variables to affect systematic risk in different firms within industries, these studies have focused on particular industries. For example, the airline industry (Lee & Jang, 2007; Hooy & Lee, 2010; Evripidou, 2012), restaurant (Borde, 1998; Gu & Kim, 2002; Park et al., 2017; Jung et al., 2018), tourism (Frutig, 2020), manufacturing (Aruna & Warokka, 2013), casino (Gu & Kim, 1998; Rowe & Kim, 2010), cement (Ahmad et al., 2011; Nawaz et al., 2017), and banking and finance (Biase & Apolito, 2012; Fahad et al., 2020). By specific industries to examine systematic risk, these studies came up with different findings and conclusions. It can be seen that the findings of previous studies on the determinants of systematic risk are inconclusive and inconsistent, these studies could not clearly explain the factors affecting systematic risk. This creates a gap for proper understanding of the sources of systematic risk in various industries within a specific market. This study attempts to overcome the limitation of prior studies by examining firm-specific factors affecting systematic risk across various industries in ASEAN-5 countries (Malaysia, Indonesia, Thailand, Singapore, and the Philippines). By observing across industries and countries, this study may provide new

evidence and various information to enhance the current understanding of the determinants of systematic risk.

Consistent with the risk and return trade-off in finance, high systematic risk reduces a firm's value and vice versa. Given this background, it is crucial for firm managers to know the sources or determinants of systematic risk like financial variables in order to better manage their investments. They should be able to prioritize which specific variables are important for firms to concern about. This may help firms to avoid losses or even bankruptcy as suggested by Gu and Kim (2002) who stated that financial distress or losses can be reduced by examining financial ratios related to systematic risk. These financial variables are known as part of the firm's specific variables.

As mentioned above, numerous studies highlighted many important variables that can influence systematic risk. The financial crisis seems to be one of many variables that can affect systematic risk, it does not only affect one particular market but also spread to all markets with various degrees and different magnitudes. For example, the 1997 Asian financial crisis which first started in Thailand was caused by the local currency depreciation. The Thai baht devaluation may be due to the high interest rate charged by banks as a result of the fixed exchange rate policy and financial liberalization (Bello, 2007; Sayaseng, 2020).

Thailand is known as a group member of ASEAN-5. ASEAN-5 is the new emerging market that includes five countries such as Thailand, Malaysia, Indonesia, the Philippines, and Singapore. These countries provide various local stocks for all investors who are seeking to invest in gaining profit (Chen, Leng, & Lian, 2005). Since these countries to some extent are economically integrated and their currency linking to the US dollar, other countries within the group are also affected by the financial crisis of 1997, especially Malaysia, Indonesia, and the Philippines. The floating of the Thai baht influenced the currency and share price of ASEAN-5 group members to be undervalued, Malaysia ringgit was attacked by speculators which made the exchange rate shoot up from 4% to 80 %. This high fluctuation in the exchange rate made investors lose trust in the Malaysian currency and stock market, resulting in panic selling of stock. Finally, the Malaysian currency

depreciated against the US dollar within a few days later (Radelet & Sachs, 1998; Corsetti, Pesenti, & Roubini, 1999; Michie & Jonh Grieve-Smith, 2003).

The 1997 Asian financial crisis was not limited only to East Asia but expanded to other markets as well such as Brazil in 1999, central America, and Russia in 1998. This is because the currency crisis is a part of the economic crisis, the entire world economy would be affected by a decline in trading volume and a dramatic drop in the price of primary goods (Karikomi, 1997). The presence of financial crises each year may not be the same due to issues and impacts in a particular country such as the Asian financial crisis in 1997, and the global financial crisis in 2008 (Warr, 2000; Hooy & Lee, 2010; Sayaseng, 2020). Some previous studies found that other variables like financial crisis may also affect systematic risk. Poor purchasing power during the financial crisis caused firms to earn less profit than normal economic condition, firms with the additional debt would fail to meet their obligation hence the systematic risk of firms would be high (Maroney et al., 2004; Choudhry et al., 2010; Loviscek & Riley, 2013; Abubakr et al., 2020). However, there are few studies explaining a relationship between the financial crisis and systematic risk, with these studies focused only on a single crisis to influence the systematic risk. This may lead to limited information about the financial crisis and systematic risk.

In response to the above matters, apart from examining the effect of firm-specific factors affecting systematic risk across various industries in ASEAN-5 within the last 20 years from 1997 to 2016. This study also investigates the impact of financial crises in 1997 and 2008 on the systematic risk exposure of various industries and compares among the five countries. The findings of this study may provide useful information on the new evidence and addition to the existing literature, which may also help increase the current understanding of the sources of systematic risk. Also, a good understanding of sources of systematic risk and the impact of financial crises on systematic risk may help policymakers as well as firm managers to formulate sound risk management strategies to deal with systematic risk in the normal period and during crises, which may result in boosting the profitability and efficiency of the firms, and at the same time reducing risk to attract more investors.

1.2 PROBLEM STATEMENT

The firm's expectation is to achieve the highest profitability and avoid any loss in investment. The firm is considered as an important part of economic development in providing job opportunities, if there is any factor affecting firms, this may also indirectly harm the health of the economy. Previous studies have established that stock price can be influenced by the systematic risk which may sharply drop in their expected return, as systematic risk may prevent firms from reaching their goal (Allen et al., 2012; Iqbal & Ali Shah, 2012; Wamba et al., 2020; Nizam et al., 2020). This systematic risk is a big concern, not only to the firms and investors but also affects the development of a nation. For example, the rate of unemployment will be high if many firms go bankrupt and lay off employees, eventually increasing the crime rate in the country. It can be inferred from this that an adequate estimate of systematic risk is required to prevent firms from bankruptcy. Also, if the systematic risk is not estimated adequately, a wrong decision on finance, operating, and investment will be made by the firms which might even be costly to the firm.

According to Gitman and Zutter (2012), systematic risk is the factor that affects the overall market and is unavoidable, this type of risk cannot be diversified away. Qiu et al. (2020) also highlighted that systematic risk is correlated to all risky assets of the market portfolio, which results from external factors such as macro variables, socio-politic issues, market-based and environmental factors. Therefore, special attention to systematic risk issues is required and appropriate prediction may help firms in having sound investment decisions.

Previous studies on systematic risk have focused mostly on two aspects which are its role in determining the expected return and its possible sources. The study of its possible sources provides a better understanding of the behavior of systematic risk itself because the study can identify the most important firm-specific factors affecting it.

Although several studies have found that firm-specific factors influence systematic risk, their findings could not clearly establish which variable is considered as the main

factor affecting systematic risk since these studies provided different findings or inconclusive results. This may be due to the fact that prior studies examined systematic risk by observing a specific industry only such as the airline industry, restaurant, tourism, manufacturing, casino, and so on. As such, it can be said that there is a gap for a good understanding of the source of systematic risk in various industries of a specific market. This study filled up the gaps by examining the firm-specific factors affecting systematic risk across industries in ASEAN-5 countries between 1997 and 2016. By focusing on sectorial and country differences in determining the sources of systematic risk may produce a better result and enhance the understanding of firm-specific factors relating to systematic risk.

Besides understanding the sources of systematic risk, the financial crisis is another important issue that firms need to be conscious about. The occurrence of a financial crisis does not only affect a specific market but affects all markets as a whole in different degrees and magnitudes. As several financial crises have been documented, the impact and sources of crises tend to vary in different firms or industries. Past studies also argued on excessive leverage as one of the main causes of financial crises that in turn affected risk especially systematic risk (Maroney et al., 2004, Loviscek & Riley, 2013; Choudhry et al., 2010; Abubakr et al., 2020). However, studies that established a relationship between systematic risk and financial crises are few and lack in-depth of studying more than one financial crisis in different industries and countries, which may make their findings limited and inconclusive.

Estimating systematic risk without referring to financial crises may not provide justice in estimating systematic risk. The purpose of doing empirical findings is to provide meaningful and comprehensive information that will be useful for appropriate decision-making. This will not be achieved if the financial crisis is not taken into consideration, although several studies might have either examined the effect of the 1997 Asian financial crisis or the 2008 global financial crisis. But this may not be enough to provide more in-depth information which helps to increase the current understanding of the financial crisis and systematic risk. In response to this matter, this study investigates the impact of both the 1997 Asian financial crisis and the 2008 global financial crisis across industries of ASEAN-