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**DETERMINANTS OF CAPITAL STRUCTURE IN INDONESIA,
MALAYSIA, AND THE PHILIPPINES**

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ABSTRACT

The paper investigates the impacts of firm-specific and country-specific determinants on capital structure of exchange listed firms in Indonesia, Malaysia, and the Philippines from 2003 to 2014. The contribution of this paper is to complement studies of capital structure in the three countries. The paper also contributes to studies about the impact of Global Financial Crisis 2008 on capital structure.

All regression models in the empirical part are fixed effect Ordinary Least Squares models (OLS). Market leverage ratio, which is a proxy of capital structure, is dependent variable. Independent variables are firm-specific determinants (profitability, tangibility, liquidity, growth opportunity, and firm size) and country-specific determinants (GDP growth rate, inflation rate, and size of stock market).

The paper has two main findings. Firstly, firm-specific and country-specific determinants had important impacts on capital structure of Indonesian, Malaysian, and Philippine firms. Also, there were no considerable differences between capital structure determinants of Indonesia, Malaysia, and the Philippines. Secondly, the paper found that the Global Financial Crisis 2008 had an influence on firms' capital structure. However, the differences between the effects of firm-specific and country-specific determinants on capital structure before and after the crisis were small.

KEYWORDS: *CAPITAL STRUCTURE, LEVERAGE, CAPITAL STRUCTURE DETERMINANTS, FINANCIAL CRISIS*

1. INTRODUCTION

1.1. Purpose of thesis

In 1958, Modigliani and Miller published their paper “The cost of capital, corporation finance and the theory of investment”. In the paper, Modigliani and Miller claim that capital structure choices are irrelevant in perfect market conditions. However, reality markets are imperfect. Therefore, the capital structure decisions become an important issue in corporate finance. There have been a lot of studies regarding capital structure decisions in imperfect markets. One noticeable thing is that in those studies, main research markets are developed countries. Rajan & Zingales (1995) investigate capital structure of firms in G7 countries. Haas & Peeters (2006) examine the capital structure dynamics of Central and Eastern European firms. Frank & Goyal (2009) study capital structure factors of public traded American firms.

The purpose of this thesis is to partly fill the gap of capital structure studies in emerging markets. The thesis investigates firm-specific and country-specific determinants of capital structure in Indonesia, Malaysia, and the Philippines from 2003 to 2014. The reason to choose Indonesia, Malaysia, and the Philippines is that they are the biggest economies in Southeast Asia. In addition, they are important trading partners for many countries in the world. However, a little research on capital structure in Indonesian, Malaysian, and Philippine markets are conducted.

The thesis also studies the effect of the Global Financial Crisis 2008 on capital structure of Indonesian, Malaysian and Philippine firms. The Global Financial Crisis was originated from the United States. Although Indonesia, Malaysia, and the Philippines have not been at the core of the crisis, their economies depend heavily on export, remittances, and foreign direct investment. Therefore, the crisis would affect those countries through trading and financing channels.

1.2. Structure of the thesis

The thesis begins with the theories of capital structure and literature review. Then it discusses the Global Financial Crisis 2008 and Indonesian, Malaysian, and Philippine economies. Afterwards, it is data and methodology section. This section describes data selection, and variables' definition. Following the data description, regression methodology is presented. The next section shows empirical results. Before running OLS models, robustness tests of all variables are performed. Robustness tests consist of non-stationarity, multicollinearity, autocorrelation and heteroskedasticity of dependent and independent variables. When the robustness tests show that all assumptions of OLS method are met, regression models are then performed.

2. THEORETICAL BACKGROUND

The section provides capital structure definition and capital structure theories. Capital structure theories include the Modigliani and Miller theorem, the pecking order theory, the trade-off theory, and the market timing theory.

2.1. Capital structure definition

In corporate finance, capital structure is defined as the way a firm finances its assets, daily operations, and future growth by some combination of equity, debt, or hybrid securities (Ross et al., 2007). A firm's capital structure has a significant influence on firm value. Modigliani and Miller (1963) claim that the value of firms and leverage have a positive correlation due to the tax deductibility of interest payments at the corporate level. Ross (1977) suggests that firm value increases with leverage. Whereas, Mojumder & Chiber (2004), Rao & Syed (2007), and Zeitun & Tian (2007) find that firm's capital structure has significant negative impacts on the firm's performance.

2.2. Capital structure theories

The section explains the Modigliani and Miller theorem – the theorem for perfect capital markets and three other popular theories for imperfect capital markets, namely the pecking-order theory, the trade-off theory, and the market timing theory.

2.2.1. The Modigliani and Miller

In 1958, Modigliani and Miller (MM) presented their theorem, which is a foundation for modern capital structure studies. The theorem is based on assumptions of a perfect capital market. A capital market is perfect when there are no taxes, no transaction costs, and no bankruptcy costs in the market. In this market, firms and individuals can access the same market information and borrow at the same interest rate. Also, in perfect

markets, financing decisions do not affect investment decisions. This implies that there is no difference between debt financing and equity financing.

With these above assumptions, the MM theorem made two propositions. The first proposition states that the capital structure has no effects on firm value. The proposition also suggests that debt holders and equity shareholders have the same priority, for example, they receive equal earnings. The second proposition is the firm's weighted average cost of capital cannot be changed by adjusting capital structure. In other words, the firm's debt to equity ratio has no impacts on its weighted average cost of capital.

However, the MM theorem was constructed based on perfect capital market conditions. Whereas, reality markets are imperfect. Bankruptcy costs, agency costs, transaction costs and tax costs prevalently exist. Debt financing and equity financing are also different. Because interest paid to debtholders is tax-deductible, meanwhile, dividends paid to stockholders is derived from after-tax profits (Graham, 2000). Therefore, to address the weakness of the MM theorem, other scholars and academicians conducted research about capital structure in imperfect markets. They disclosed some theories related to capital structure. Three most common theories are the trade-off theory, the pecking order theory, and the market timing theory. Those theories are analyzed in the next section.

2.2.2. Trade-off theory

The trade-off theory states that firm's capital structure is determined by a trade-off between the advantages and the disadvantages of debt. One advantage of debt is that interests paid on debt is tax-deductible (Kraus and Litzenberg, 1973 and Jori, 2016). This lead to a reduction in taxes firms have to pay and increases cash flow after taxes. Another advantage is that debt imposes disciplines on managers and therefore help

resolve agency problems (Ross et al., 2007; Barnea et al., 1981; Jensen & Meckling, 1976 and Jensen, 1986). However, debt also has its disadvantage. Jensen & Meckling (1976) claim that the disadvantage of debt is financial distress cost. Financial distress cost is referred as the risk of bankruptcy when firms are unable to pay their debts. It is probably consequences of inappropriate investment projects and agency problems. Managers might make very risky investments, which leads to big losses. In some cases, they invest in low return projects that add no value or little value to shareholders.

There are many evidences for and against the trade-off theory. Bradley et al. (1984) is one of the studies which supports for the theory. This research indicates that firms' optimal leverage correlates negatively to the financial distress costs. Additionally, Bradley et al. find that firm leverage has a negative relationship with earnings volatility. By contrast, Titman & Wessels (1988) provides the evidence against the tradeoff theory. In detail, they find an inverse correlation between profitability and firm's leverage. Myers (1993) also have the same finding as Titman & Wessels (1988).

2.2.3. Pecking order theory

The pecking-order theory discusses financial hierarchy among three sources of funds: retained earnings, equity, and debt. The theory says that firms prefer internal funds to external funds so that retained earnings are the first choice. Among the two other funds, debt ranks above equity. The reason for this order is adverse selection. When firms issue more stocks, stockholders will revalue their securities. Thus, equity is considered to have severe adverse selection, debt has less adverse selection and retained earning has no adverse selection. (Myers, 1984).

Some empirical evidences of the theory are presented as follows. Shyam-Sunder & Myers (1999) conclude that firms make capital structure decisions based on the pecking

order theory. Particularly, when firms face financial deficit, they prefer to use debt. Issuing stocks at that time might be a signal of difficult finance situation for investors. To avoid bad views of the investors, firms are likely to issue debt. Rajan and Zingales (1995) also show that profitability and leverage have an inverse relationship. That result follows the pecking order theory, which suggests that profitable firms can finance their investments by internal funds rather than external funds. Similarly, Byoun & Rhim (2003) find that small firms prefer internal funds because it is difficult for them to approach sources of external funds.

2.2.4. Market timing theory

Market timing theory says that corporate financing decisions depend on market conditions. Managers analyze the positions of debt and equity market before they make financing decisions. There might have three situations. The first situation is that they need funds immediately so that they will choose a method is more favorable. The second situation is they do not need funds and both of the markets are unfavorable. Therefore, they will not issue securities. The third situation is one of the markets is favorable, they will raise more funds even though they have sufficient funds at that time. (Frank & Goyal, 2009).

Similar to the previous theories, there has been many evidences about the market timing theory. Loughran et al. (1994) and Hovakimian et al. (2001) show that equity issues are more likely to happen when firm valuations are high. Furthermore, as Graham and Harvey (2001) study, firm valuation is an important factor for managers to consider when they issue equity. Baker & Wurglar (2002) also indicate that market timing has significant and long lasting influences on leverage.

3. LITERATURE REVIEW

In this section, several previous studies about determinants of capital structure in Indonesia, Malaysia and the Philippines are presented. Then literature review of country-specific and firm-specific determinants are discussed.

3.1. Previous capital structure studies in Indonesia, Malaysia, and the Philippines Nagano (2001)

Nagano (2001) investigates determinants of corporate capital structure in Indonesia, Korea, Malaysia, the Philippines, and Thailand in the period from 1993 to 2001. Dependent variable in the study is the book value of liabilities divided by market value of equity plus preferred stock. Independent variables are firm size, profitability, market to book ratio and tangibility.

In general, the study suggests that there is a negative relationship between firm profitability and corporate debt to equity ratio in all the countries. Furthermore, firm size has a significant relationship with debt to equity ratio of those countries. However, tangibility has no impacts on corporate debt to equity.

Deesomsak et al. (2004)

Deesomsak et al. (2004) examine the determinants of capital structure of firms in Thailand, Malaysia, Singapore, and Australia from 1993 to 2000. Dependent variable used in the study is debt to capital ratio, which is equal to total debt divided by total debt plus market value of equity and book value of preferences shares. Independent variables are stock market's activity, the level of interest rate, creditors' rights, ownership concentration, tangibility, growth opportunity, non-debt tax shield, liquidity, and share price performance.

Results of the study are explained as follows. Firstly, the positive impact of firm size and the negative impact of growth opportunities, non-debt tax shield, liquidity and share price performance on leverage follow main capital structure theories. Secondly, the determinants of capital structure have diverse effects on different countries. For example, firm size has no relationship on leverage of Singaporean firms whereas profitability has important impact on the capital structure of Malaysian firms. The differences are probably because of country-specific determinants. Finally, the study suggests that the financial crisis 1997 changed the role of firm and country specific determinants. The association of leverage and firm specific variables were different before and after the crisis.

Huat (2008)

In 2008, Huat published a paper named “The determinants of capital structure: evidence from selected ASEAN countries”. The paper studies 155 listed firms in Indonesia, Malaysia, the Philippines, and Thailand over the period between 2003 and 2007.

Dependent variable used in this paper is market leverage ratio, which is equal to total debts divided by total debts plus market value of equity. Independent variables are size of the banking industry and stock market, GDP growth rate, inflation, profitability, firm growth, non-debt tax shield, and firm size.

Results of the paper are shown as follows. It is found that for all four countries, profitability and growth opportunities have negative impacts on leverage. Non-debt tax shield and leverage of Indonesian, the Philippines, and Thailand have positive relationships whereas they have negative relationship for Malaysian firms. Firm size has a significant positive relationship for Indonesian and Philippine firms. The paper

also find that stock market capitalization and GDP growth rate exhibit significant relationship with leverage while size of bank sector and inflation have no effect on leverage.

3.2. Previous studies of capital structure determinants

3.2.1. Country-specific determinants

Gross domestic product (GDP) growth rate

A change in GDP growth rate affects both the supply and demand for loanable funds. Subsequently, it affects the cost of debt and the amount of debt which firms can borrow. The relationship between GDP growth rate and capital structure is unclear. Tugba, Bulnur and Kate (2009) say that a country, which has a high GDP growth rate, can provide more external financing sources. According to the trade-off theory, with more external financing sources, the cost of debt may be lower. Therefore, firms might prefer to issue debt instead of equity. Also, the market timing theory says that in this case, debt market is favorable for firms to borrow. As a result, firms can issue debt more easily. Previous studies share the same conclusions are Demirguc-Dunt (1998), La Porta et al. (1977) and Booth et al. (2001). They conclude that GDP growth rate and debt correlate positively. On contrary, Myers (1977), Myers (1984) and Huat (2008) show a negative relationship between two variables. Their findings indicate that firms with relatively higher rate of economic growth use lower level of debt to finance new investments. They argue that firms from a high GDP country might not need large amounts of external funds.

Inflation

The impact of inflation on capital structure is mixed. Fan et al. (2006) claims that a high inflation makes lenders reduce borrowing long term debt. Barry et al. (2008), Huat (2008) and Booth et al. (2011) also give results of negative association between

inflation and debt. However, many researchers propose inverse findings. Taggart (1985) suggests that high inflation leads to high tax deductions on debt and thus, debt increases. De Angelo & Masulis (1990) suggest two hypotheses. One hypothesis is if inflation rises, cost of debt decreases so that firms want to borrow more and leverage increases. Another hypothesis is if inflation decreases, the corporate bonds' return increases and therefore the demand for bonds increases.

Size of stock market

Mayer (1990) and Rajan & Zingales (1995) state that size of stock market is one of capital structure determinants. When a stock market is expanded, firms might want to issue stocks instead of debt. Therefore, size of stock market affects leverage negatively. There are several studies conducted to investigate the relationship between size of stock market. Dermirguc-Kunt & Maksimovic (1998 & 1999), Booth et al. (2001) and Giannetti, (2003) confirm that size of stock market is correlated inversely with leverage.

3.2.2. Firm-specific determinants

Profitability

According to the trade-off theory, when profit increases, the expected cost of distress decreases. As a result, firms issue more debt because they want to exploit of tax benefits (Tugba, Gulnur, and Kate, 2009) and lower bankruptcy risk (Jensen, 1986). Previous studies agree on this theory's statement are Buyerna, Bangassa, Hodgkinson (2005), Tarazi (2013), Kester (1986), Friend & Hasbrouck (1988), Titman & Wessels (1988) and Um (2001). By contrast, the pecking order theory states that holding investments and dividends constant, the higher the profits are, the lower the debt is. A possible explanation is that profitable firms depend on internal funds, which are created from retained earnings or past profits rather than external funds. Many researchers report a

negative sign of leverage and profitability relationship (Myers, 1984), Deesomsak et al. (2004) Okuda & Nhung, (2010), Huat (2008), Henkel (1982), Blazenko (1987), Poitevin (1989), Titman & Wessels (1988), Rajan & Zingales (1995), Antoniou et al. (2002) and Bevan & Danbolt (2002).

Tangibility

The pecking order theory says that if adverse selection of assets occurs, high tangibility increases adverse selection and therefore reduces leverage. Studies support this perspective are Deesomsak et al. (2004), Buyerna et al., (2005), Wahab and Ramli (2014), Myers (1984), Titman & Wessels (1988), Rajan & Zingales (1995) and Wiwattanankantang (1999). The pecking order theory also claims that a relatively high tangibility result in low asymmetric information and therefore make equity issuances cheaper. As a result, firms use less debt. With a similar idea, Titman (1984) proposes that for firms with unique products, tangibility and leverage have an inverse correlation (due to higher financial distress cost). Other studies which find a negative association between leverage and tangibility can be listed as Dzung, Ivan & Gregoriou. (2012).

Growth opportunities

In accordance with the pecking order theory, holding profits stable, more growth opportunities could lead to an increase in debt financing. Scholars who advocate this theory are Gupta (1969), Um (2001), Booth et al (2001), Pandey (2001), Dzung, Ivan & Gregoriou (2012) and Okuda & Nhung, (2010). They claim that leverage and growth have a positive association. Their findings follow the pecking order theory. The theory suggests that holding profit stable, debt will rise with growth opportunities. Nevertheless, the trade-off theory argues that when growth increases, costs of financial distress also increases. Subsequently, free cash flow decreases and agency problem related to debt increases. As a consequence, there is a reduction in leverage. On the same side with the trade-off theory, the market timing theory suggests that firms take

advantages of mispricing options to issue more equity so that more growth opportunities lead to less debt. Myers (1977), Titman & Wessels (1988), Frank & Goyal (2009), Deesomsak et al. (2004) and Huat (2008) provide evidence for a negative relationship between growth opportunities and leverage.

Firm size

The trade-off theory claims that large firms are usually older firms and have better reputation so that they can issue debt more easily. That is the reason why firm size and leverage has a positive relationship. Myers (1984), Um (2001), Huang & Song (2002), Rajan & Zingales (1995), Titman & Wessels (1988), Deesomsak et al. (2004) and Huat (2008) also give similar results about debt and firm size association. Nevertheless, according to the pecking order theory, large firms will have more retained earnings and therefore they use less debt. Empirical evidences regarding the negative relationship between size and leverage are Bevan & Danbolt (2002), Dzung, Ivan and Gregoriou (2012), and Wahab & Ramli (2014).

Liquidity

According to the trade-off theory, liquid assets increase leverage and debt of companies. This relationship is confirmed by the study of Sibikov (2004). Sibikov concludes that high liquid firms might have high asset turnover and they are more leveraged. Because those firms have enough liquid assets to turn into cash and repay its current liabilities. However, the pecking order theory argues that high liquid firms are more financed by its internal resources and therefore less leveraged. Lipson & Mortal (2009) also find the negative relationship between liquidity and leverage.

4. ECONOMIC ENVIRONMENT AND COUNTRY OVERVIEW

This section first explained reasons and progress of the Global Financial Crisis 2008. Then descriptions of Indonesia, Malaysia and the Philippines are presented. Finally, the effect of the crisis on Indonesia, Malaysia and Philippines' economies are analyzed.

4.1. The Global Financial Crisis 2008

In the 2000s, commercial banks in the United States lowered lending criteria, particularly housing loan criteria. That encouraged people which had low creditability to borrow money to buy houses. This kind of loans was called subprime loans or subprime mortgages. Investment banks then bought those subprime loans. They bundled them with other loans to be one package called collateralized debt obligations (CDOs). The package was organized into three categories as follows: category 1: CDOs had low probability of default; category 2: CDOs had medium probability of default and category 3: CDOs had high probability of default. If home owners repaid their mortgages, the money would come in the category 1 first, next category 2 and last category 3. Investment banks then sold these CDOs to individual investors, bankers, and hedge funds. Investors who buy CDOs of category 1 receive the lowest rate of return because they were considered as the safest. Meanwhile, category 3 had the highest rate of return and category 2 had the medium rate of return.

However, many home owners could not repay their loans. Consequently, investment banks and other investors were holding a large number of houses as collaterals. Those houses became illiquidity. Because supply of houses increased whereas demand for them decreased. Banks and other investors could not sell the houses they were holding. Housing bubble started. A massive of banks and investors encountered liquidity shortage. On 15th September 2008, Lehman Brothers, the fourth largest investment bank in the United States filed for bankruptcy. The bank suffered huge losses due to the CDO's defaults. Also, another firm that faced with default was AIG, one of the

largest insurance companies in the world. AIG's default was a consequence of the default of CDSs because at this time, AIG was the largest player in CDS market. However, unlike Lehman Brothers, AIG was bailed out by the US Government.

The collapse of Lehman Brothers in 2008 was considered as a starting point for the Global Financial Crisis. It triggered bankruptcies, bailouts, and takeovers of financial institutions all over the world.

4.2. Indonesia, Malaysia, and the Philippines

4.2.1. Overview

Indonesia

Indonesia is a unitary sovereign state and transcontinental country in Southeast Asia. Indonesia includes more than 13,000 islands. That is why it is called the world's largest island country. Its population is 260 million people. The most populous island of Indonesia is Java, which accounts for more than half of the country's population. The capital of Indonesia is Jakarta. The country shares land borders with Papua New Guinea, East Timor, and the eastern part of Malaysia. Indonesia is a founding member of Association of Southeast Asian Nations (ASEAN). It is also a member of the G-20. In 2014, Indonesian economy ranked the 16th largest economy in the world.

Malaysia

Malaysia is a federal constitutional monarchy in Southeast Asia. It consists of thirteen states and three federal territories. It is divided by the South China Sea into two regions, Peninsular Malaysia and East Malaysia. Peninsular Malaysia shares a land and maritime border with Thailand, Singapore, Vietnam, and Indonesia. East Malaysia shares land and maritime borders with Brunei, Indonesia, the Philippines, and Vietnam.

The population of Malaysia is over 30 million. The capital of Malaysia is Kuala Lumpur. Malaysia is a newly industrialized market economy. In 2014, it ranked the 29th largest economy in the world. Like Indonesia, Malaysia is one of five founders of the Association of Southeast Asian Nations (ASEAN).

The Philippines

The Philippines is a sovereign island country in Southeast Asia. It consists of over 7641 islands, which are divided into three main geographical regions: Luzon, Visayas, and Mindanao. The Philippines share maritime borders with Taiwan, Palau, Malaysia and Indonesia. Its population is approximately 100 million. The capital of the Philippines is Manila. The Philippines is a founding member of the United Nations (UN), World Trade Organization (WTO), Association of Southeast Asian Nations (ASEAN), the Asia-Pacific Economic Cooperation forum, and the East Asia Summit. The headquarters of the Asian Development Bank is also situated in the Philippines. The Philippines is an emerging and a newly industrialized country. In 2014, its economy ranked the 33rd largest in the world.

4.2.2. Comparison of Indonesia, Malaysia, and Philippine economies

This part compares Indonesia, Malaysia, and Philippine economies. Overall, they are all large economies in ASEAN. *They have following similarities. Their economies have been transitioning to emphasize on manufacturing and services.* As for Indonesia, in 2014, manufacturing sector accounted for 46.9% of its GDP. Services sector amounted to 38.8% and agriculture hold 14.3% of its GDP. Likewise, in the same year, services accounted for 56.1% of Malaysia's GDP. Whereas, the manufacturing sector hold 36.8% and the agriculture sector hold 7.1%. The services, manufacturing, and agriculture sector of Philippines are also 57.5%, 31%, and 11.5% respectively.

Moreover, Indonesia, Malaysia, and the Philippines are all located in the center of the Asia-pacific region, which is main trade routes of the world. It is estimated that international trade through its waterways is 5.3 billion US dollars per year. *Indonesia, Malaysia, and the Philippines are important trading partners with many countries.* In 2014, Indonesia ranked the 25th biggest exporting country in the world. In the five-year period from 2009 to 2014, Indonesian export increased by 59 billion US dollars. Export contributed to nearly 22.12% of Indonesia's GDP. The main export products of Indonesia are cola briquettes, palm oil, petroleum gas, crude petroleum, and rubber. Its export partners are Japan, China, the United States, Singapore, and India. Indonesia is also an importing country. In 2014, Indonesia imported 178 billion US dollars. Its main import products are refined petroleum, crude petroleum, petroleum gas, vehicle parts, and broadcasting equipment. Indonesia's import partners are China, Singapore, Japan, South Korea, and Malaysia. Indonesia had a trade surplus of 19.4 billion US dollars in 2014.

Similar to Indonesia, Malaysia ranked the 19th largest export country in the world. In 2014, it exported 273 billion US dollars. Over five-year period from 2009 to 2014, the export of Malaysia increased by 9.5%. According to World Bank data, and OECD National Accounts data, export of goods and services contributed to 73.8 percent of Malaysia's GDP. Main export products are integrated circuits, refined petroleum, petroleum gas, palm oil and telephones. Export markets of Malaysia are Singapore, China, the United States, Japan, and Thailand. Like Indonesia, Malaysia is also an importing country. It imported 204 billion US dollars in 2014. Main import goods are integrated circuits, refined petroleum, crude petroleum, gold, and planes, helicopters and spacecraft. Import markets of Malaysia are China, Singapore, Japan, the United States, and Thailand. In 2014, Malaysia had a trade surplus of 68.8 billion dollars.

The Philippines was the 41st largest export country in the world. In 2014, the country exported 80 billion US dollars. Export of goods and services accounted for 28.7 percent of the Philippines' GDP. Main export goods are integrated circuits, computers, office machine parts, semiconductor devices, nickel ore. Export partners of the Philippines are China, Japan, the United States, Singapore, and Hong Kong. Additionally, the country imports a lot of goods from other countries. It imports integrated circuits, refined petroleum, crude petroleum, cars and planes, helicopters, and/ or Spacecraft. Main import origins are China, South Korea, Japan, the United States, and Singapore. In 2014, the country experienced a trade deficit of 741 million US dollars.

Indonesia, Malaysia, and the Philippines are destinations of foreign investments. They are also large recipients of remittances. With regard to investments, Malaysia was the 5th largest recipient of FDI inflows in the world (UNCTAD 2015 World Investment Report). In 2014, FDI inflows of Malaysia was 10.8 billion USD. The most beneficial sectors of FDI were manufacturing, finance and insurance, mining and distribution. Compared to Malaysia, the Philippines also attracts a lot of FDI. In 2014, total FDI value of the Philippines was 6.2 billion US dollars. The biggest investors are Japan, the Netherlands, and the United States. Beneficial sectors are manufacturing, electricity, gas, steam, air conditioning supply, administrative and support service activities. Similarly, Indonesia was a large recipient of foreign investments with 3.3 billion US dollars FDI. The biggest investing countries are Singapore, Malaysia, Japan, the Netherlands, and South Korea. Industries that receive a large amount of FDI are mining, transportation, telecommunication, and the mineral-processing.

Regarding remittances, the Philippines was the largest recipient of remittances in the world. Its total value of foreign exchange remittances was 28 billion US dollars, which accounted for 8.5% of GDP. This number was 2.65 billion US dollars higher than that in 2013. Similar to the Philippines, Indonesia relies heavily on remittances. It ranked

the third largest recipients of remittances in the world. The total value of remittances to Indonesia in 2014 was over 8.3 billion US dollars, which accounted for 0.6% of its GDP. Remittances increased approximately 1.7 billion US dollars compared to 2013. Also, the value of remittances in Malaysia was over 3 billion US dollars in 2014, which amounted to 0.5 percent of Malaysia's GDP. However, remittances to Malaysia declined considerably compared to the figure of 6.78 billion US dollars in 2008.

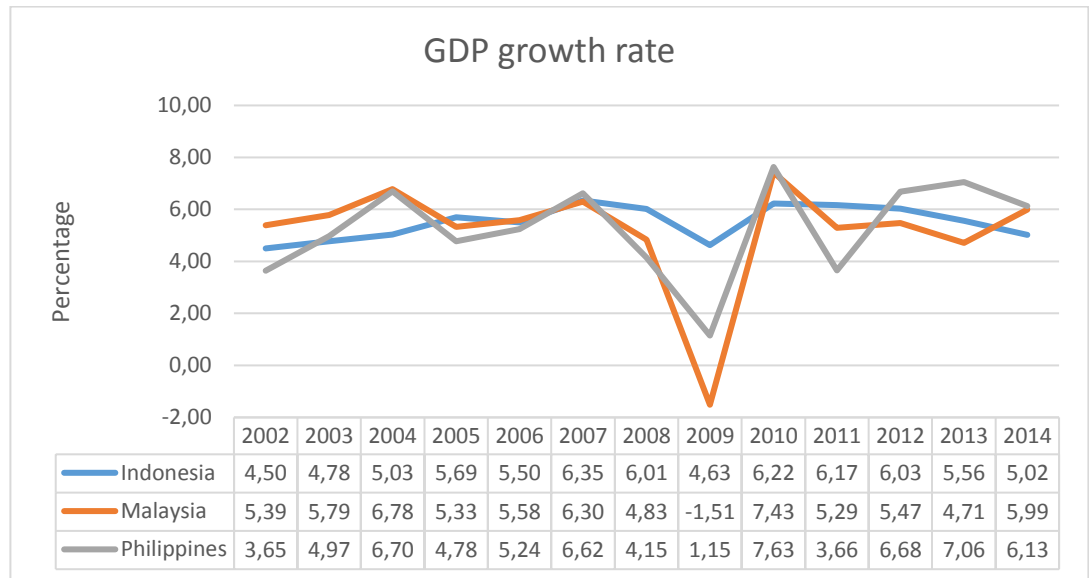
Although Indonesian, Malaysian, and Philippine economies share many characteristics in common, they still have some differences. Among the three countries, Indonesia is the largest economy. In 2014, Indonesia's GDP was 890.49 billion US dollars, followed by Malaysia (338.10 billion US dollars), and the Philippines (284.8 billion US dollars). Indonesian economy is not really open. The Government and large private business groups play important roles in the economy. Whereas, Malaysia and the Philippines are relatively open state-oriented and newly industrialized market economies. Therefore, Malaysia and the Philippines might be affected more by the world economy.

4.3. Impacts of the Global Financial Crisis 2008 on Indonesian, Malaysian, and Philippine economies

The Global Financial Crisis 2008 influenced Indonesian, Malaysian, and Philippine economies. Since these economies have increasingly integrated with the world economy, any instability from foreign markets would affect their economies.

As can be seen from Chart 1, GDP growth rate of Indonesia, Malaysia, and the Philippines decreased considerably in 2009. GDP growth rate of Indonesia dropped by nearly 1.5%. Malaysia even suffered negative GDP growth rate, with a drop of 6.3% compared to year 2008. Whereas, GDP growth rate of the Philippines decreased by 3%.

Chart 1. GDP growth rate of Indonesia, Malaysia, and the Philippines from 2003 to 2014



The crisis also had influences on trade of Indonesia, Malaysia, and the Philippines. Exports of Indonesia declined sharply. Export growth rate fell by 36.08% in January 2009 year-on-year. Imports in January 2009 decreased by 33.99% compared to December 2008. Likewise, there was a significant drop in Malaysian exports by 28% in year-on-year terms in January 2009, which was the biggest decrease in exports since 1982. Malaysian imports also dropped by 27%. While, both export and import of the Philippines declined by 41% and 34.5% respectively according to year on year data in January 2009.

The crisis also decreased investment inflows in Indonesia, Malaysia, and the Philippines. A large amount of trading volume in Indonesian, Malaysian, and Philippine stock market were attributed to foreign participants. The crisis made their stock exchange indexes decrease. It is possible because foreign investors wanted to reduce their international business investments and focus on their home markets. Malaysian stock exchange fell down 59.02% from 1393 points in January 2008 to 876

points in December 2008. Whereas, Indonesia's and the Philippines' stock exchange index dropped by 51.17% and 48% respectively.

Furthermore, FDI inflows in the three countries decreased sharply. FDI of Malaysia dropped by 98 percent from 5.3 billion US dollars in the second quarter of 2008 to 0.01 billion US dollars in the third quarter of that year. For the whole year, FDI reduced by 17 percent compared to year 2007. Similar to Malaysia, the Philippines and Indonesia for FDI inflows for the year 2008 plunged 48% and 52.34%.

5. METHODOLOGY AND DATA

This section shows the data and methodology used to conduct the empirical study. The data part discusses variable selection and data collecting process. The methodology analyzes regression models.

5.1. Variable selection and data collecting process

5.1.1. Variable selection

Dependent variable: Leverage

The paper uses leverage as a proxy of capital structure. Harris & Raviv (1991) suggests that the choice of measures for leverage is crucial as it may affect the interpretation of the results. There are many arguments about using book or market value leverage.

Many researchers use market value leverage (Wiwattanakantang, 1999; Suto, 2003; Deesomsak et al., 2014). Bradley (1984) and Frank & Goyal 2009 argue that the market value is better because it reflects a firm current cost of capital. Rajan & Zingales (1995) also say that the determinants of capital structure are sensitive to the measure of leverage and the measure of leverage based on the market value of equity rather than the book value. According to Welch (2014), book value is primarily a “plug number” used to balance the left-hand side and the right-hand side of the balance sheet. It can be negative and just backward looking. Meanwhile, market value is forward looking.

By contrast, many scholars choose book value leverage. Myers (1997) argues that book value is preferred because financial markets fluctuate considerably and market leverage is an inaccurate measure. Suhaila et al., 2008 discuss that book value is commonly used to measure leverage in empirical studies, especially in emerging markets. Bowmen (1980) claims that book value of debt is probably a very good alternative for market

value of debt because of the high correlation between these two measures obtained in his study. Vuong & Tran (2010) used only book value since it is difficult to get market value leverage with low liquidity bond market, highly volatile stock market and bank-based economy.

The paper uses market value leverage which is equal to book value of total liabilities divided by book value of total liabilities plus market value of equity.

$$\frac{\textit{Book value of total liabilities}}{\textit{Book value of total liabilities} + \textit{Market value of equity}}$$

Independent variables: Country-specific and firm-specific determinants

In this paper, independent variables consist of firm-specific and country-specific determinants. Country-specific determinants are GDP growth rate, inflation rate, and size of stock market. Firm-specific determinants are profitability, tangibility, growth opportunities, firm size, and liquidity. Table 1 shows details about independent variable selection.

Table 1. Selection for country-specific and firm-specific determinants

Proxy	Measure	Reference
Inflation	Annual inflation rate	Tugba, Gulnus and Kat (2009) and Huat (2008)
GDP	Annual GDP growth rate	Tugba, Gulnus and Kat (2009) and Huat (2008)
Size of stock market	Stock market capitalization divided by GDP	Huat (2008)
Profitability	Return on Assets	Frank & Goyal (2009)
Tangibility	Total fixed assets divided by total assets	Frank & Goyal (2009), Deesomsak et al. (2004)
Growth opportunities	The result of book value of total assets minus book value of equity plus market value of equity divided by book value of assets (Market to book ratio)	Tugba., Gulnus and Kat (2009) and Huat (2008)
Firm size	Log (total assets)	Deesomsak et al. (2004)
Liquidity	Current assets divided by current liabilities	Deesomsak et al. (2004)

5.1.2. Data collecting process

Data of leverage and firm-specific determinants are obtained through Datastream. Meanwhile, data of country-specific determinants are collected from the website The Global Economy. Data sample consists of all exchange listed firms except for financial organizations. Financial organizations including banks, insurance companies and investment funds are excluded because they have exception capital structure which is different from other types of corporate (Antoniou et al., 2008). Additionally, all firms with more than one “not applicable” data are excluded from the sample.

Data is collected from 2003 to 2014. The year 2003 is selected as the starting point to avoid the effect of internet bubbles between late 1990s and early 2000s. 2008 is considered as to be the first year the Global Financial Crisis. As discussed earlier, it is the year when Lehman Brothers went bankrupt, leading to a recession all over the world. Data sample contains 5 years before the crisis, and 5 years after crisis. Therefore, it gets long enough pre-crisis and post-crisis periods to make reliable results. Data is winsorized at 1th and 99th percentile to eliminate the influence of extreme observations.

5.2. Methodology

The paper uses fixed effect Ordinary Least Squares (OLS) model. As mentioned above, dependent variable is Market Leverage ratio. Independent variables include GDP growth rate, inflation rate, size of stock market, profitability, tangibility, liquidity, growth opportunity, and firm size. Additionally, in order to build a complete dynamic specification that takes into account the possible effect of AR-process on error term and the implications of adjustment costs, a one period lagged market leverage is included in the model (Devereux and Schiantanelli, 1990 and Jori, 2016).

Models with only firm-specific determinants and a one period lagged market leverage are regressed first. Then country-specific determinants are added to examine the effect of macroeconomic factors to capital structure. Lastly, the data is divided into 6 subsamples: Indonesia before and after the crisis, Malaysia before and after the crisis, the Philippines before and after the crisis.

Full model with both country and firm-specific determinants:

$$LEV_t = \alpha + \beta_1 LEV_{t-1} + \beta_2 GDP + \beta_3 INF + \beta_4 STOCK + \beta_5 PRO + \beta_6 TANG + \beta_7 GO + \beta_8 SIZE + \beta_9 LIQ + \varepsilon$$

Where

LEV_t is market leverage of year t;

LEV_{t-1} is lagged one year period market leverage

GDP is GDP growth rate

INF is inflation rate

STOCK is stock market size

PRO is profitability

TANG is tangibility

GO is growth opportunity

SIZE is firm size

LIQ is liquidity

6. RESEARCH RESULTS

6.1. Summary statistics

This section analyzes the simple statistics description of leverage ratio, country-specific and firm-specific determinants. Table 2 (see Appendix) shows that the leverage ratios for Indonesia, Malaysia, and the Philippines are relatively high, which ranges from 0.45 to 0.51. Indonesia has the highest leverage ratio (0.51), followed by Malaysia (0.47) and the Philippines (0.45). As for firm-specific determinants (see Table 3), Indonesia firms seem to have better financial performance than Malaysian and Philippine firms. They have higher profitability, tangibility, growth opportunities and firm size. However, Indonesia has the lowest liquidity ratio (1.71). Meanwhile, the Philippines has the highest liquidity ratio (2.91).

As for the country-specific determinants (see Table 4), the ranking for GDP growth rate from the highest to the lowest is Indonesia (5.52%), the Philippines (5.27%) and Malaysia (5.16%). Similarly, Indonesia has the highest inflation rate (9.22%), followed by the Philippines (4.01%) and Malaysia (3.52%). Whereas, based on the size of stock market, Malaysia ranked 1st. Its stock market capitalization equivalent to 139.39 percent of its GDP. That number of the Philippines and Malaysia was 57.91 percent and 36.83 percent respectively.

In addition, from the test of normality using Jarque-Bera, all variables are not normally distributed. A violation of normality assumption can lead to some consequences, such as bias or inefficient regression models. However, according to the Central Limit Theorem, when the sample size is sufficiently large (>200) observations, the sum (or average) of variables' distribution will be approximately normal. Therefore, with large data sample, all variables in this paper are referred as normality.

6.2. Tests of errors

All variables in the paper must meet OLS assumptions. The OLS assumptions are described as follows.

1. Dependent variable is a linear function of independent variables and a random error term.
2. The expected value of the error term is zero for all observations

$$E[\varepsilon|X] = 0$$

3. The error term is independently distributed from one another.

$$\text{Cov}(\varepsilon_i, \varepsilon_j) = E(\varepsilon_i, \varepsilon_j) = 0, i \neq j$$

4. The conditional variance of the error term is constant with all X and over time.

$$\text{Var}(\varepsilon_i) = \sigma_i^2 = \text{const}$$

5. Independent variable is uncorrelated with the error term

$$\text{Cov}(X_i, \varepsilon_j) = 0$$

6. Independent variables are not strongly collinear.

With the assumptions, estimators will be Best Linear Unbiased Efficient (BLUE).

6.2.1. Test of non-stationarity

As variables in the paper are time series data, a non-stationarity test is performed before tests of OLS assumptions. A stationarity is a stochastic process, which has constant mean, variance and covariance over time. The unit root test of Levin, Lin, Chu is conducted to assess existence of non-stationarity on all variables in this paper, including leverage ratios, country-specific and firm-specific determinants. As Levin, Lin, Chu tests show, the null hypothesis of non-stationarity for all variables are rejected. (see Table 5).

6.2.2. Test of multicollinearity

Multicollinearity is a phenomenon when two or more independent variables in regression models are highly correlated (It violates assumption 4 of OLS models as mentioned above). With a multicollinearity model, the standard errors of the independent variables' coefficients will be large. That leads to a low t-statistic and therefore, a null hypothesis cannot be rejected. Moreover, multicollinearity makes estimators sensitive to small changes of data.

Table 6, Table 7, and Table 8 report the results of correlation analysis between the dependent and independent variables. Market leverage and one period lagged market leverage are highly correlated. While there are no multicollinearity problems among independent variables.

6.2.3. Test of autocorrelation

Autocorrelation is referred to a presence of correlation between one time series and a lagged version of itself. Autocorrelation violates the OLS assumption that the error terms are uncorrelated (Assumption 3). The violation of autocorrelation makes estimators biased. A test for the presence of first-order autocorrelation is the Durbin-Watson test. Durbin-Watson statistic numbers in this paper are approximately equal to 2, which shows that there is no autocorrelation in the regression models (see Table 9).

6.2.4. Test of heteroskedasticity

A heteroskedasticity happens when variance of error terms is not a constant. The existence of heteroscedasticity violates OLS assumption 4. Estimators are inefficient because the true variance and covariance are underestimated.

A heteroskedasticity is tested by White heteroskedasticity tests. As the tests shows, R^2 is large so all regression models in the paper have heteroskedasticity problem (see Table 10). Therefore, the White heteroskedasticity corrected standard errors regression models are used.

6.3. Empirical results

6.3.1. Results for individual countries and firm-specific determinants

Overall, firm-specific determinants hold strong explanatory power over market leverage. Goodness of fit measured by adjusted R-squared is 0.81 for Indonesia as well as Philippine models and 0.74 for Malaysia models. Also, the results in Table 11 show that capital structure determinants in Indonesia, Malaysia, and the Philippines are quite similar. This is consistent with Antoniuo et al. (2008) and Jori (2016). They conclude that similar economies have similar capital structure determinants.

As can be seen from Table 11, market leverage and one period lagged market leverage have a strong positive relationship for Indonesia, Malaysia, and the Philippines. The inclusion of one period lagged market leverage in the models also increased the R-squared as well as solved the autocorrelation problem.

Profitability and leverage is found to be negative and statistically significant for these countries. The evidence of this inverse relationship supports results of previous studies (Rajan and Zingales, 1995 and Booth et al., 2001). It is also consistent with the pecking order theory, which means firms prefer to use internal sources of funding when profits are high.

Table 11. Firm-specific determinants of market leverage

Independent variable	Market leverage		
	Indonesia	Malaysia	The Philippines
Leverage t-1	0.434***	0.530***	0.533***
	(0.000)	(0.000)	(0.000)
Profitability	-0.004***	-0.004***	-0.002***
	(0.000)	(0.000)	(0.000)
Tangibility	-0.014	-0.024***	0.071**
	(0.287)	(0.000)	(0.039)
Growth opportunities	-0.023***	-0.066***	-0.004***
	(0.000)	(0.000)	(0.000)
Firm size	0.053***	0.043***	0.062***
	(0.002)	(0.000)	(0.000)
Liquidity	-0.016***	-0.023***	-0.001
	(0.000)	(0.000)	(0.219)
Adjusted R-squared	0.811	0.741	0.807
F-statistic	32.484	47.600	34.003
Prob (F-statistic)	(0.000)	(0.000)	(0.000)

Note: Parentheses are P-value

*** and ** denote significant at 1% and 5% level respectively

Tangibility has a significant relationship with leverage. This finding is consistent with conclusions of Ellili and Farouk (2011). They claim that asset structure plays an important role in determining the capital structure. Also, as the table shows, the sign of the relationship between tangibility and leverage is ambiguous. Tangibility has a negative relationship with leverage and statistically significant for Malaysia, but not significant for Indonesia. By contrast, tangibility and leverage correlates positively and significantly for the Philippines. The finding of positive relationship is consistent with the pecking order theory. The pecking order theory suggests that high tangibility firms have low asymmetric information, therefore they prefer equity to debt. Majority of

previous studies has also found the same correlation between tangibility and leverage (Deesomsak et al., 2004; Titman & Wessels, 1988; Dzung, Ivan & Gregoriou, 2012). Whereas, the negative relationship supports the results of Martina (2015) and Skoogh & Swärd (2015).

Growth opportunities has an inverse relationship with leverage for Indonesia, Malaysia, and the Philippines. The negative correlation supports the predictions of the trade-off theory and the market timing theory. According to the trade-off theory, firms with high growth opportunities have higher financial distress costs. Thus, they issue less debt. Also, the market timing theory claims that based on mispricing options, firms tend to use more equity. Consequently, they have low leverage. However, the negative correlation between growth opportunities and leverage is different from the concept of the pecking order theory, which says that more opportunities lead to more debt.

Firm size has statistically significant and positive correlation with leverage for firms of three countries. This is consistent with the trade-off theory. In accordance with the theory, large firms have better reputation, therefore, they can issue more debt. There is also some evidence of positive correlation (Ferri & Jones, 1979; Smith & Watts, 1992; and Jori, 2016). By contrast, the pecking order theory argues that large firms often have more retained earnings and they prefer using internal financing resources. As a result, they have low leverage.

Liquidity has a negative relationship and statistically significant for all countries. The result of this paper is consistent with the pecking order theory. The theory says that high liquid firms use more internal financing sources. Thus, they have small leverage. However, this finding is contrary to some previous literatures. They concluded that high liquid firms are more likely to repay their debts than low liquid ones. Therefore, they are more leveraged.

6.3.2. Results for individual countries with firm-specific and country-specific determinants

After running models with firm-specific determinants, country-specific determinants, which are GDP growth rate, inflation rate and size of stock market, are included. In general, the models with both country-specific and firm-specific determinants give more accurate results because the goodness of fit R-squared are slightly higher.

GDP growth rate variable yield a positive impact on leverage and the coefficients are significant for Indonesia and Malaysia, but insignificant for the Philippines. The positive relationship is consistent with previous literature. Booth et al. (2001), Demirguc-Dunt (1998), and Tugba et al. (2009) claim that in countries with relatively higher rate of economic growth, there are more external financing sources, thus firms are using higher levels of debt.

Inflation rate has a positive relationship with leverage and statistically significant at 10 percent level for the Philippines. It supports some previous studies, in which they conclude that high inflation reduces real cost of debt, therefore, firms prefer issuing more debts. However, as can be seen from the table, the relationship between inflation rate and leverage is not significant for Malaysia and Indonesia. Hence, in general, it shows that inflation rate seems not to have large impacts on leverage of firms in Indonesia, Malaysia, and the Philippines.

Size of stock market has negative relationship with leverage. As for the stock market development, it can provide alternative source of funding to firms other than borrowing from banks or bond market. Thus, stock market size impact negatively with leverage. Deesomsak et al. (2004) found the same correlation between stock market size and

Table 12. Country-specific and firm-specific determinants of market leverage

Independent variable	Market leverage		
	Indonesia	Malaysia	The Philippines
GDP	0.015*	0.005***	0.005
	(0.005)	(0.000)	(0.113)
Inflation	0.001	-0.001	0.007*
	(0.234)	(0.670)	(0.053)
Size of stock market	-0.004***	-0.001***	-0.002***
	(0.000)	(0.000)	(0.000)
Leverage t-1	0.446***	0.544***	0.483***
	(0.000)	(0.000)	(0.000)
Profitability	-0.004***	-0.004***	-0.002***
	(0.000)	(0.000)	(0.000)
Tangibility	-0.043***	-0.025***	0.023
	(0.003)	(0.000)	(0.465)
Growth opportunities	-0.020***	-0.062***	-0.003***
	(0.000)	(0.000)	(0.000)
Firm size	0.113***	0.043***	0.142***
	(0.000)	(0.000)	(0.000)
Liquidity	-0.016***	-0.023***	-0.001
	(0.000)	(0.000)	(0.295)
Adjusted R-squared	0.831	0.751	0.833
F-statistic	36.887	33.488	39.82
Prob (F-statistic)	0.000	0.000	0.000

Note: Parentheses are P-value

*** and ** denote significant at 1% and 5% level respectively

leverage.. Whereas, Huat (2008) study, there is no significant effects of stock market size on leverage.

Results in these models are still the same as the results from models with only firm-specific determinants. Most of firm-specific factors have the same impacts on leverage (in terms of sign as well as significance) for all firms in Indonesia, Malaysia, and the Philippines. Nevertheless, as for the Philippines, tangibility and liquidity turn out to have no effects on leverage. The result shows the positive but insignificant relationship between tangibility, liquidity, and leverage.

6.3.3. Results for individual countries before and after the Global Financial Crisis 2008

This section investigates the effects of the Global Financial Crisis 2008 on leverage. First, t-test is applied to test for the difference in mean of the before-crisis and after-crisis variables. Then, data is divided into 6 subsamples, and regression analysis is run separately for all subsamples.

Table 13, 14, and 15 show the results of T-test. As can be seen from those tables, the Global Financial Crisis had influences on most of variables. For Indonesia and the Philippines, all variables changed significantly before and after the crisis except for liquidity. For Malaysia, there were no differences between means of inflation rate, tangibility, and growth opportunities before and after the crisis. However, all other variables had changed considerably.

Table 13. T-test for difference in mean for all variables before and after the crisis - subsamples of Indonesia

Indonesia	Before	After	t-test	Probability
Leverage	0.53	0.44	10.15***	0.00
GDP growth rate	5.43	5.59	-8.26***	0.00
Inflation rate	11.29	7.24	29.71***	0.00
Size of stock market	28.92	43.90	-54.35***	0.00
Profitability	5.26	6.56	-4.41***	0.00
Tangibility	0.40	0.38	2.86***	0.00
Growth opportunities	1.56	2.13	-7.73***	0.00
Firm size	4.89	5.22	-14.04***	0.00
Liquidity	2.19	2.17	0.18	0.43

Table 14. T-test for difference in mean for all variables before and after the crisis - subsamples of Malaysia

Malaysia	Before	After	t-test	Probability
Leverage	0.49	0.45	6.96***	0.00
GDP growth rate	5.71	4.52	28.61***	0.00
Inflation rate	3.51	3.52	-0.24	0.41
Size of stock market	133.83	145.88	-33.30***	0.00
Profitability	3.42	3.77	-1.59*	0.06
Tangibility	0.32	0.37	-1.19	0.11
Growth opportunities	1.09	1.10	-0.30	0.38
Firm size	4.93	5.02	-6.69***	0.00
Liquidity	2.38	2.59	-3.88***	0.00

Table 15. T-test for difference in mean for all variables before and after the crisis subsamples of the Philippines

Philippines	Before	After	t-test	Probability
Leverage	0.38	0.51	-10.86***	0.00
GDP growth rate	5.16	5.36	-2.48**	0.01
Inflation rate	4.90	3.05	37.15***	0.00
Size of stock market	39.27	77.75	-61.87***	0.00
Profitability	1.90	4.87	-6.18***	0.00
Tangibility	0.32	0.24	7.01***	0.00
Growth opportunities	1.20	2.28	-6.05***	0.00
Firm size	4.92	5.16	-6.23***	0.00
Liquidity	2.87	3.37	-1.21	0.11

Note: ***, **, and * denote significant at 1% , 5%, and 10% level respectively

Table 16 reports the results from the regressions before and after the crisis 2008. The crisis had significant effects on capital structure of Indonesia, Malaysia, and the Philippines. However, there are no big differences between determinants of capital structure in the three countries before and after the crisis.

Also, the crisis seems to have small effects on capital structure of Indonesia, Malaysia, and the Philippines because the parameter estimators from the regression models only changed slightly. A possible reason is that these economies were affected by the crisis as discussed earlier, but only in 2008 and 2009. They then recovered quickly. Chart 1 indicates that GDP growth rate of Indonesia, Malaysia, and the Philippines reached the bottom in 2009. However, it continued growing afterwards. These countries were resilient to the crisis as they had some experience in the Asian crisis 1997 and the

Internet Bubble 2000s. Therefore, they could take quick actions to stabilize their economies. Also, in 2008, their finance and banking systems were stronger, which might be a good cushion to help their economies overcome the crisis. Importantly, their international trades were more sustainable. They became robust against the impacts of the global crisis.

The regression results are presented in detail as follows. Table 15 reports that the effects of country-specific determinants on leverage before the crisis were consistent with the regression analysis results of whole period in previous section. GDP correlated positively and significantly at 10% level with leverage of Indonesian firms and 1% level with leverage of Malaysian firms. Meanwhile, inflation had no influences on leverage for all countries. Size of stock market still correlated significantly and negatively with leverage.

However, after the crisis, country-specific determinants seem to have weaker effects on leverage. GDP and inflation are found to have insignificant relationship with leverage. Size of stock market still yield the same effect on leverage. In detail, size of stock market and leverage correlated significantly and negatively. Nevertheless, stock market size decreases leverage less after the crisis.

Table 16. Determinants affecting leverage before and after the crisis

Independent variable	Indonesia		Malaysia		Philippines	
	Before	After	Before	After	Before	After
GDP	0.008*	-0.005	0.015***	0.005	-0.001	0.001
	(0.087)	(0.178)	(0.000)	(0.106)	(0.668)	(0.959)
Inflation	0.001	-0.001	-0.001	-0.001	0.003	-0.002
	(0.000)	(0.264)	(0.423)	(0.304)	(0.396)	(0.431)
Size of stock market	-0.004***	-0.003***	-0.001***	-0.001***	-0.003***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.263)	(0.000)	(0.000)
Leverage t-1	0.342***	0.283***	0.437***	0.269***	0.403***	0.276***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)
Profitability	-0.003***	-0.004***	-0.005***	-0.004***	-0.003***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tangibility	-0.046***	-0.068**	-0.031**	-0.029**	-0.001	0,114*
	(0.132)	(0.013)	(0.003)	(0.244)	(0.831)	(0.089)
Growth opportunities	-0.021***	-0.024***	-0.073***	-0.069***	-0.002***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm size	0.179***	0.139***	0.055***	0.226***	0.204***	0.141***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Liquidity	-0.015***	-0.014***	-0.028***	-0.018***	-0.001**	-0.003**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.043)	(0.016)
Adjusted R-squared	0.827	0.751	0.699	0.904	0.877	0.859

Note: Parentheses are P-value

*** and ** denote significant at 1% and 5% level respectively

The relationships between firm-specific determinants and leverage in both pre-post crisis subsample regression models are generally the same as those in the whole sample models. Profitability, growth opportunities, and liquidity yield significant and negative influences on leverage. Meanwhile, tangibility and leverage have an unclear correlation and firm size correlates positively with leverage. In spite of that, the level of the effects of firm-specific determinants on leverage changed slightly before and after the crisis. The table 15 shows that coefficients of profitability after the crisis are higher than before the crisis. It means that profitability decreases leverage less after the crisis. It is inconsistent with the results of Jori (2016), which stated that firms with high profits would decrease default risk and borrowing cost by reducing leverage after the crisis.

Tangibility also shows a different level of effect on leverage before and after the crisis. As for Philippine firms, before the crisis, the relationship between tangibility and leverage is insignificant. However, after the crisis, tangibility correlates significantly and positively with leverage. For Indonesian firms, the relationship of tangibility and leverage after the crisis is stronger. Tangibility decreases leverage more after the crisis. Whereas, for Malaysian firms, tangibility decreases leverage less after the crisis.

Growth opportunities of Indonesian, Malaysian, and Philippine firms are found to decrease leverage more after the crisis. One possible reason is during the more volatile market conditions after the crisis, firms and lenders are most likely to reduce risk. Thus, growth firms prefer to use less debt and at the same time, lenders are less willing to give loans to firms.

Firm size and leverage relationship changed slightly after the crisis. For Indonesian and Philippine firms, firm size decreases leverage more after the crisis. On the contrary, for Malaysian firms, firm size decreases leverage less after the crisis. It is said that larger

firms seem to be more stable and less risky. Therefore, they are less likely to face with bankruptcy and use more debt.

Liquidity of Indonesian and Malaysian firms appear to decrease leverage less after the crisis. It is possible that in volatile market, high liquidity firms can access funds more easily compared to low liquidity firms. Therefore, they can borrow more debt. By contrast, liquidity of Philippine firms decrease leverage more after the crisis. Probably firms with high liquidity have more reputation and therefore prefer issuing equity to debts.

7. CONCLUSION

The thesis investigates firm-specific and country-specific factors which affect capital structure of firms in Indonesia, Malaysia, and the Philippines. The three countries are large economies in ASEAN. They are also emerging markets. Their economies have increasingly integrated with the world economy.

As shown in the empirical part, firm-specific and country-specific determinants had important effects on capital structure of Indonesian, Malaysian, and Philippine firms. Furthermore, those effects are similar for the three countries. This is consistent with previous findings that similar economies will have similar capital structure. In detail, size of stock market, profitability, and growth opportunities had statistically significant and negative impacts on leverage for all selected countries. The relationship between tangibility and leverage was negative, but only significant for Indonesian and Malaysian firms. GDP growth rate correlated positively with leverage for Indonesia and Malaysia. However, there was no association between this rate and leverage for the Philippines. Firm size had positive effects on leverage for the three countries. Inflation rate had no significant effect on leverage for Indonesia and Malaysia, but significant and positive effect for the Philippines.

The thesis also found that the Global Financial Crisis 2008 had influences on capital structure decisions of firms in Indonesia, Malaysia, and the Philippines. Nevertheless, the effects of the crisis on capital structure determinants were small. As for firm-specific determinants, the estimators from regressed models only differed slightly in terms of magnitude before and after the crisis. Before and after the crisis, profitability, tangibility, growth opportunities, and liquidity still had negative associations with leverage. While there was a positive link between firm size and leverage pre- and post-crisis. As for country-specific determinants, GDP growth rate and inflation do not have large effects on leverage. Whereas, size of stock market remained its inverse

relationship with leverage before and after the crisis. Nevertheless, size of stock market decreased leverage less after the crisis.

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APPENDIX

Table 2. Descriptive statistics for Market leverage ratio of Indonesia, Malaysia and the Philippines

Leverage	Indonesia	Malaysia	Philippines
Mean	0.51	0.47	0.45
Median	0.51	0.46	0.44
Maximum	0.99	0.98	0.98
Minimum	0.01	0.02	0.01
Std. Dev.	0.27	0.25	0.29
Skewness	-0.03	0.01	0.14
Kurtosis	1.84	1.98	1.79
Jarque-Bera	257.83	484.74	163.85
Probability	0.00	0.00	0.00
<i>Observations</i>	<i>4581</i>	<i>10,904</i>	<i>2541</i>

Table 3. Descriptive statistics for firm-specific determinants

Lagged Leverage	Indonesia	Malaysia	Philippines
Mean	0.51	0.47	0.46
Median	0.52	0.46	0.44
Maximum	0.99	0.98	0.97
Minimum	0.01	0.02	0.00
Std.Dev	0.27	0.25	0.29
Jarque-Bera	227.09	484.85	145.66
Probability	0.00	0.00	0.00
Profitability	Indonesia	Malaysia	Philippines
Mean	5.63	3.53	3.27
Median	4.86	3.96	3.56
Maximum	40.64	29.22	49.91
Minimum	-30.87	-46.22	-86.19
Std. Dev.	8.33	8.17	11.62
Jarque-Bera	2171.84	15767.79	18385.87
Probability	0.00	0.00	0.00
Tangibility	Indonesia	Malaysia	Philippines
Mean	0.39	0.37	0.32
Median	0.37	0.35	0.27
Maximum	0.92	0.93	0.94
Minimum	0.00	0.00	0.00
Std. Dev.	0.23	0.21	0.26
Jarque-Bera	162.87	302.31	147.82
Probability	0.00	0.00	0.00

Table 3 (Continued)

Growth opportunity	Indonesia	Malaysia	Philippines
Mean	1.78	1.09	1.67
Median	1.14	0.81	1.05
Maximum	20.21	8.57	14.59
Minimum	0.29	-0.77	-1.67
Std. Dev.	2.14	0.97	3.93
Jarque-Bera	54012.08	62422.72	453683.80
Probability	0.00	0.00	0.00
Firm size	Indonesia	Malaysia	Philippines
Mean	5.11	4.97	5.05
Median	5.09	4.89	4.96
Maximum	7.19	7.18	7.19
Minimum	2.78	3.45	2.32
Std. Dev.	0.77	0.65	0.90
Jarque-Bera	40.92	806.68	9.06
Probability	0.00	0.00	0.01
Liquidity	Indonesia	Malaysia	Philippines
Mean	1.71	2.48	2.91
Median	1.23	1.66	1.10
Maximum	20.32	23.69	127.8
Minimum	0.01	0.01	0.00
Std. Dev.	2.19	2.82	8.51
Jarque-Bera	61824.29	111613.00	856720.50
Probability	0.00	0.00	0.00
Observations	4581	10,904	2541

Table 4. Statistics of country-specific determinants

GDP growth rate	Indonesia	Malaysia	Philippines
Mean	5.52	5.16	5.27
Median	5.56	5.47	5.24
Maximum	6.35	7.43	7.63
Minimum	4.49	-1.51	1.15
Std. Dev.	-0.61	2.10	1.76
Jarque-Bera	405.86	23485.90	248.55
Probability	0.00	0.00	0.00
Inflation rate	Indonesia	Malaysia	Philippines
Mean	9.22	3.52	4.01
Median	8.27	3.29	4.02
Maximum	18.15	10.39	7.55
Minimum	3.75	-5.99	1.97
Std. Dev.	4.52	4.10	1.54
Jarque-Bera	473.54	471.22	227.52
Probability	0.00	0.00	0.00
Stock market size	Indonesia	Malaysia	Philippines
Mean	36.83	139.39	57.91
Median	39.83	144.80	55.52
Maximum	48.98	168.07	91.95
Minimum	15.37	81.99	22.75
Std. Dev.	10.88	20.84	24.25
Jarque-Bera	483.84	5533.66	238.84
Probability	0.00	0.00	0.00

Table 5. Stationarity analysis for dependent variables and independent variables of Indonesia, Malaysia, and the Philippines

<i>Unit root test</i>		<i>Indonesia</i>	<i>Malaysia</i>	<i>Philippines</i>
<i>Market leverage</i>	Levin, Lin, Chu statistics	-48.12	-31.86	-64.20
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary
<i>Lagged leverage</i>	Levin, Lin, Chu statistics	-57.69	-31.82	-133.08
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary
<i>GDP growth rate</i>	Levin, Lin, Chu statistics	-25.91	-38.30	-24.26
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary
<i>Inflation rate</i>	Levin, Lin, Chu statistics	12.07	-30.67	-11.53
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary
<i>Stock size</i>	Levin, Lin, Chu statistics	-30.55	-28.59	-29.01
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary
<i>Profitability</i>	Levin, Lin, Chu statistics	-35.09	-42.58	-52.64
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary

Table 5 (Continued)

<i>Tangibility</i>	Levin, Lin, Chu statistics	-16.48	-33.29	-26.39
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary
<i>Growth opportunity</i>	Levin, Lin, Chu statistics	-49.49	-37.79	-21.32
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary
<i>Firm size</i>	Levin, Lin, Chu statistics	-44.55	-27.16	-24.15
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary
<i>Liquidity</i>	Levin, Lin, Chu statistics	-60.86	-38.02	-81.38
	Probability	0.00	0.00	0.00
		Stationary	Stationary	Stationary

Table 6. Correlation analysis between dependent variable and independent variables of Indonesia

<i>Correlation Probability</i>	<i>LEV</i>	<i>LEV(-1)</i>	<i>GDP</i>	<i>INF</i>	<i>STOCK</i>	<i>PRO</i>	<i>TANG</i>	<i>GO</i>	<i>SIZE</i>	<i>LIQ</i>
<i>LEV</i>	1									
<i>LEV_1</i>	0.85	1								
<i>GDP</i>	-0.07	-0.13	1							
<i>INF</i>	0.09	0.05	0.08	1						
<i>STOCK</i>	-0.17	-0.09	0.18	-0.25	1					
<i>PRO</i>	-0.44	-0.37	0.05	-0.02	0.08	1				
<i>TANG</i>	0.09	0.08	-0.03	0.01	-0.03	-0.16	1			
<i>GO</i>	-0.45	-0.38	0.07	-0.07	0.13	0.32	-0.04	1		
<i>SIZE</i>	-0.02	-0.05	0.04	-0.13	0.16	0.22	0.17	0.15	1	
<i>LIQ</i>	-0.39	-0.35	0.01	0.03	-0.01	0.16	-0.26	-0.01	-0.1	1

Table 7. Correlation analysis between dependent variable and independent variables of Malaysia

<i>Correlation Probability</i>	<i>LEV</i>	<i>LEV(-1)</i>	<i>GDP</i>	<i>INF</i>	<i>STOCK</i>	<i>PRO</i>	<i>TANG</i>	<i>GO</i>	<i>SIZE</i>	<i>LIQ</i>
<i>LEV</i>	1									
<i>LEV_1</i>	0.77	1								
<i>GDP</i>	-0.04	-0.08	1							
<i>INF</i>	-0.02	-0.02	-0.01	1						
<i>STOCK</i>	-0.11	0.04	0.15	0	1					
<i>PRO</i>	-0.32	-0.2	0.03	0.01	0.02	1				
<i>TANG</i>	0.13	0.09	0.04	-0.02	-0.01	-0.07	1			
<i>GO</i>	-0.46	-0.3	0.05	0.01	0.12	0.21	-0.1	1		
<i>SIZE</i>	0.19	0.16	0	-0.01	0.02	0.21	0.11	0.04	1	
<i>LIQ</i>	-0.55	-0.44	0	0.01	0.01	0.16	-0.21	0.04	-0.17	1

Table 8. Correlation analysis between dependent variable and independent variables of the Philippines

<i>Correlation Probability</i>	<i>LEV</i>	<i>LEV(-1)</i>	<i>GDP</i>	<i>INF</i>	<i>STOCK</i>	<i>PRO</i>	<i>TANG</i>	<i>GO</i>	<i>SIZE</i>	<i>LIQ</i>
<i>LEV</i>	1									
<i>LEV_1</i>	0.87	1								
<i>GDP</i>	-0.06	-0.06	1							
<i>INF</i>	0.16	0.08	-0.16	1						
<i>STOCK</i>	-0.25	-0.22	0.41	-0.66	1					
<i>PRO</i>	-0.2	-0.16	0.05	-0.02	0.12	1				
<i>TANG</i>	0.15	0.16	0.02	0.04	-0.13	0.06	1			
<i>GO</i>	-0.26	-0.22	0.05	-0.09	0.13	0.12	-0.07	1		
<i>SIZE</i>	0.24	0.19	0.05	-0.11	0.18	0.33	0.14	0.02	1	
<i>LIQ</i>	-0.3	-0.28	0.02	-0.06	0.05	-0.01	-0.17	0.01	-0.16	1

Table 9. Summary of Durbin-Watson test

Durbin-Watson d stat	Indonesia	Malaysia	The Philippines
Models with Firm-specific determinants	2.01	2.09	2.05
Models with Country-specific and firm-specific determinants	1.95	1.95	1.97

Table 10. Summary of White-test

White-test	Indonesia	Malaysia	The Philippines
Models with Firm-specific determinants	38.07	66.55	12.85
Models with Country-specific and firm-specific determinants	29.70	39.54	14.22