MACROECONOMIC FACTORS AFFECTING INWARD CROSS-BORDER MERGERS AND ACQUISITIONS IN SELECTED DEVELOPING COUNTRIES

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ABSTRAK

Kajian ini mengkaji kesan penglibatan 5 faktor makroekonomi terhadap penggabungan masuk merentas sempadan dan pengambilalihan dalam 11 buah negara membangun dalam tempoh dari tahun 2001 hingga 2015. Kajian tersebut menguji hipotesis dengan menggunakan Ujian Unit Root, Perangkaan deskriptif, Panel kuasa dua terkecil dan Korelasi. Hasil kajian menunjukkan bahawa hubungan negatif antara tiga faktor makroekonomi (inflasi, kadar pertukaran dan kadar faedah) dan nombor penggabungan masuk merentas sempadan dan pengambilalihan. Selain itu, hasil kajian menunjukkan bahawa hubungan positif antara satu faktor makroekonomi (Gross Produk Dalam Negeri) dan nombor penggabungan masuk merentas sempadan dan pengambilalihan. Kajian ini menunjukkan bahawa peratusan yang tinggi dalam kadar pertukaran, kadar faedah dan inflasi membawa kesan kepada nombor penggabungan masuk merentas sempadan dan pengambilalihan menjadi rendah. Selain itu, peratusan yang rendah dalam Keluaran Dalam Negara Kasar membawa kesan kepada nombor penggabungan masuk merentas sempadan dan pengambilalihan menjadi rendah. Indeks harga saham mempunyai hubungan negatif yang tidak ketara terhadap nombor penggabungan masuk merentas sempadan dan pengambilalihan. Kajian ini menunjukkan bahawa nilai-nilai yang lebih tinggi dalam Nilai Kini Bersih akan menjana peningkatan penggabungan masuk merentas sempadan dan pengambilalihan di negara-negara pada masa akan datang daripada menyokong teori isyarat.

Kata kunci: masuk menyeberangi sempadan penggabungan dan pengambilalihan; inflasi; kadar bunga; KDNK; SPI; kadar pertukaran

ABSTRACT

This study examines the effect of 5 macroeconomic factors on inward cross-border merger and acquisition in 11 developing countries within the periods from the year 2001 to 2015. This research examines the hypotheses by employing Unit Root Test, Descriptive Statistics, Panel Least Squares (OLS) and Correlation Test. The finding indicates that there is a negative relationship between three macroeconomic factors (inflation, exchange rate and interest rate) and the numbers of the inward cross-border mergers and acquisitions. There are positive relationship between another one macroeconomic factors (Gross Domestic Products) and the numbers of the inward cross-border mergers and acquisitions. This implies that high percentage of inflation, exchange rate and interest rate lead to lower the number of inward cross-border mergers and acquisitions. Moreover, low percentage of Gross Domestic Products leads to lower the number of inward cross-border mergers and acquisitions. Stock Price Index (SPI) is insignificant negative relationship with inward cross border M&A. This indicates that higher values in the Net Present Values will able to generate favorable values of inward cross-border mergers and acquisitions of the countries in future, in which support the signaling theory.

Keywords: inward cross border mergers and acquisitions; inflation; interest rate; GDP; SPI; exchange rate

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LISTS OF ABBREVIATIONS

FDI	=	Foreign Direct Investment
M&A	=	Mergers and acquisitions
β_0	=	The regression intercept
β	=	The regression coefficients of respective variables
ε	=	Error term of regression
GDP	=	Gross Domestic Product
Eq	=	Equation
H_1	=	First Hypothesis
UNCTAD	=	United Nations Commission on Trade and Development
NPV	=	Net Present Value
SPI	=	Stock Price Index
IMF	=	International Monetary Fund
FE	=	Fixed effect estimator
RE	=	Random effect estimator
HT	=	Hausman Test
IRR	=	Internal rate of return
OLS	=	Ordinary Least Square

CHAPTER ONE

INTRODUCTION

1.0 Introduction

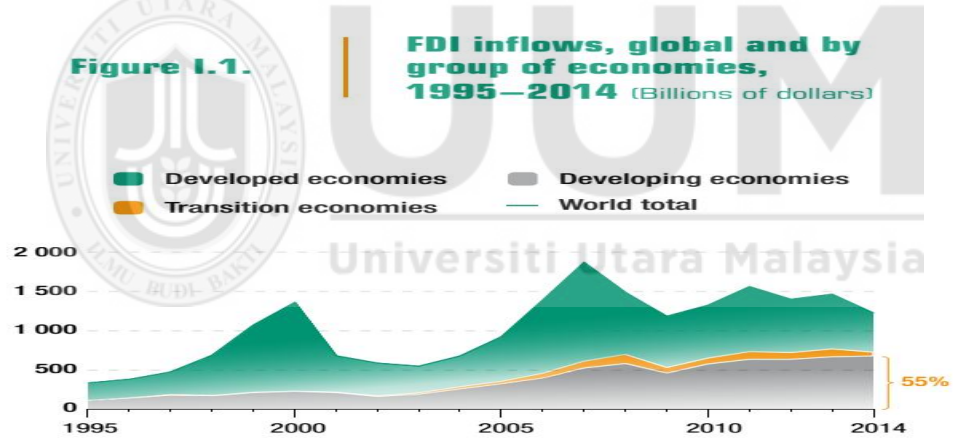
There are abundant of economic and finance literature in the area of the merger and acquisition (M&A) (Hopkins, 1999, Chapman, 2003, Kamal, Noryati &Ismail, 2013) due to the important role of cross border mergers and acquisitions (cross border M&A). The literature however is more focused on developed countries with little study undertaken in the context of developing and under developed countries. This dissertation thus attempts to investigate macroeconomic factors that explain inward cross border M&A activity for developing countries.

This chapter provides the introduction to the dissertation. The 1.1 section presents the background of study followed by the problem statement in Section 1.2. In Section 1.3, this section presents the research question。The research objective will be presented in Section 1.4. Section 1.5 presents the scope of study and the significant of study is presented in Section 1.6. Section 1.7 presents limitations of study.

1.1 Background of Study

The report of United Nations Commission on Trade and Development (UNCTAD, 2000) shows that the majority of Foreign Direct Investment (FDI) can be categorized as cross-border M&A, which reached more than 80 per cent in 1999.

International Monetary Fund (IMF) stated that global FDI inflows declined by 16 per cent in the year 2014 to $ 1.23 trillion in the year 2015 (IMF, 2015). The decline in FDI trends is due to investor policy uncertainty, the fragility of the global economy and geopolitical risks. For developing countries, FDI reached the highest level, reaching 621 billion pounds, an increase of 2%, China is the world's largest recipient of foreign direct investment (Figure 1.1).



Source: UNCTAD, FDI/MNE database (www.unctad.org/fdistatistics).

IMF (2015) notes that global private equity funds have approximately $ 115 billion in cash compared to their previous overseas acquisitions, resulting in cross-border M&A of approximately $ 85 million. Interest rates in Asian developed countries remain low, but investors' commitments and cash levels remain high (estimated at about $ 360 billion).

According to the IMF (2015), FDI in developed countries fell by 28 per cent to $ 499 million due to the recovery of cross-border M&A. Inward and outward cross

border M&A of private equity funds in 2014 increased to 200 billion US dollars, from 6% in 2013 to 2007 and 2008, 13% in the world (Table 1.1).

Table 1.1 *Cross Border M&A by Private Equity Firms in the world, 1996-2014*

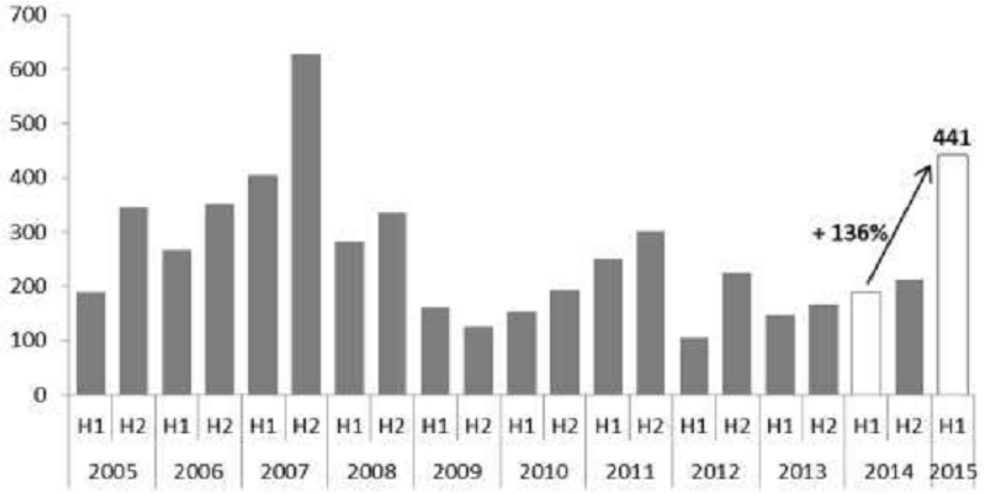
	Number of deals		Gross M&As		Net M&As	
Year	Number	Share in total (%)	Value ($ billion)	Share in total (%)	Value ($ billion)	Share in total (%)
1996	970	16	43	16	18	12
1997	1 057	15	58	15	18	10
1998	1 228	15	62	9	28	8
1999	1 451	15	80	9	27	5
2000	1 457	14	82	6	30	3
2001	1 435	17	82	11	34	8
2002	1 281	19	71	14	13	5
2003	1 555	23	91	23	31	19
2004	1 675	22	134	25	62	31
2005	1 842	20	202	22	103	19
2006	1 859	18	259	23	115	18
2007	2 046	17	528	30	279	27
2008	1 946	18	437	31	103	17
2009	2 083	24	105	17	62	22
2010	2 195	22	144	19	66	19
2011	1 953	19	155	15	66	12
2012	2 209	23	188	23	63	19
2013	1 964	23	169	23	82	26
2014	2 358	24	200	17	85	21

Source: UNCTAD, cross-border M&A database (www.unctad.org/fdistatistics).
Note: Value on a net basis takes into account divestments by private equity funds. Thus it is calculated as follows: Purchases of companies abroad by private equity funds (-) Sales of foreign affiliates owned by private equity funds. The table includes M&As by hedge and other funds (but not sovereign wealth funds). Private equity firms and hedge funds refer to acquirers as "investors not elsewhere classified". This classification is based on the Thomson Finance database on M&As.

Europe and North America are the main areas of private equity funds for cross border M&A in 2014, but Asia is also becoming more attractive among the developing countries. Several evidences show that there is an increase in private funds for cross-border M&A in 2014, especially in East Asia, such as China and Korea. For example, a number of mega-events have been implemented, including pre-IPO deals related to China's leading e-commerce companies, including Alibaba and JD.com from China. In South Asia, the strong inflows of foreign private equity funds have pushed up the value of deals as a result of competition among the funds.

In the first half of 2015, cross-border M&A activity increased significantly. The value of cross-border M&A purchases as an indicator of outward direct foreign investment rose to $ 441 billion, an increase of 136 percent over the same period in 2014 (Figure 1.2).

Figure 1.2. Value of cross border M&As of the world, 2005H1-2015H1 (Billions of US dollars)



Source: ©UNCTAD, cross-border M&A database (www.unctad.org/fdistatistics).
Abbreviation: H1–first half of the year.

Cross border M&A from Asian developing countries fell (-27%) in 2015 after becoming the world's largest investment region for the first time in 2014. Transnational corporations (TNC) activities from Latin America and the Caribbean and Africa also declined, reflecting the effects of the devaluation of their currencies and the fall in commodity prices.

Cross border M&A growth is expected to slow in the second half of 2015, but the value for the full year will be well above the 2014 level, based on the first ten months of the year. While economic, financial and structural trends support this prediction, potential downside factors may limit the scale and timing of current cross border M&A waves.

As reported by the UNCTAD (2015), a surge in cross border M&A during the year 2015 was the primary driver of the increase in FDI flows to developed economies. The value of the deals rose by 109 per cent to $631 billion, reaching their highest level since 2007. Activity was particularly pronounced in the United States

(US), where net sales rose from $17 billion in 2014 to $299 billion in 2015. Deal making in Europe was also up significantly about 36 per cent (UNCTAD, 2015).

In this research, the influence of five macroeconomic factors, namely interest rate, stock price index (SPI), exchange rate, gross domestic product and inflation on the inward cross border M&A on the inward cross border M&A of 11 developing countries (Brazil, Indonesia, Korea, Republic, Malaysia, Peru, Philippines, Thailand, Turkey, India, Vietnam and China) are examined.

1.2 Problem statement

Cross border M&A in developing countries in 2014 are more attractive to the investors compared to the cross border M&A in developed countries (UNCTAD, 2015). Several reports show that there is an increasing trend in inflow cross border M&A in 2014, especially in China and Korea (UNCTAD, 2015).

Literature has associated the increased in the inflow cross border M&A with economic factors (Jonathan and Fredrik, 2014), firm level factors (Gugler, Mueller and Micheal, 2012), political environment (Alessandro, Borchert and Mattoo, 2015) and cultural differences (Kenneth, Daniele and Fracassi, 2011).

Several studies discuss about how the economic determinants reflect inward cross border M&A (eg. Agyenim, Ruthira and Moshfique, 2011; Kamal, Ismail and Fahmi, 2013). Most of the studies focus more on the developed countries such as United States (US) and United Kingdom (UK) but less on the developing countries (Agyenim, Ruthira and Moshfique, 2011).

In this research, the focus is on the macroeconomic determinants influence on the inward cross border M&A in the developing countries. There are many

macroeconomic factors that reflect the inward cross border M&A such as inflation, interest rate, GDP, SPI, interest rate and exchange rate.

Based on the market-seeking (FDI) argument, higher GDP growth means that high economic demands in the host country, which lead to the increasing of inflow cross border M&A (Douglas, 2011). Jonathan and Fredrik (2014) argued that GDP is not significant in influencing inflow cross border M&A due to the possible that negative market reaction to the limited market size in host country may stimulate host country firm to seek other potential markets.

Uddin & Boateng (2011) state that there are negative relationship between inflation and inward cross border M&A. The lower inflation rate in host country attracts inward cross border M&A. The presence of high inflation in the host country will reduces return on investments and increasing cost of capital hence discourages inward cross border M&A.

For Tolentino (2010), lower interest rates reduce the cost of financing in the host country and then attract the inward cross border M&A because of the wealth of capital and thus encourages profitability of international expansion. Agyenim, Ruthira and Moshfique (2011) argued that there is insignificant effect on the real interest rate on inward cross border M&A.

Erel et al. (2011) state that the exchange rate as an important variable that influence the inward cross border M&A. If the exchange rate of home currency depreciates, then the inward cross border M&A will be increase in the host country.

Agyenim, Ruthira and Moshfique (2011) state that SPI play an important role in the inward cross border M&A. The result shows there are positive relationship between SPI and cross border M&A. The higher of the growth of the SPI in a country, the more inward cross border M&A happen. McCann (2001) argued that SPI is

insignificant negative relationship between SPI and inward cross border M&A.

Motivated by the above inconclusive findings, this study sets a goal to re-examine the effects of the macroeconomic factors (interest rate, inflation, SPI, GDP and exchange rate) on the inward cross border M&A in the developing countries.

1.3 Research Question

Based on the problem statement above the main research question examined in this study is set as follows:

How do macroeconomic factors (real interest rate, exchange rate, SPI, GDP and inflation) influence the inward cross border M&A in developing countries?

The more specific research questions are as follows:

1) Does GDP has a significant influence on the inward cross border M&A in developing countries
2) Does exchange rate has a significant influence on the inward cross border M&A in developing countries
3) Does inflation has a significant influence on the inward cross border M&A in developing countries
4) Does interest rate has a significant influence on the inward cross border M&A in developing countries
5) Does SPI has a significant influence on the inward cross border M&A in developing countries

1.4 Research Objective

The research will be conducted to determine the inward cross border M&A might be the result from interaction of several factors, such as interest rate, exchange rate, SPI, GDP and inflation. Therefore, the main objectives of this research paper are presented as follows:

1) To examine the influences of interest rate on the inward cross border M&A in developing countries.
2) To examine the influences of exchange rate on the inward cross border M&A in developing countries.
3) To examine the influences of SPI on the inward cross border M&A in developing countries.
4) To examine the influences of GDP on the inward cross border M&A in developing countries.
5) To examine the influences of inflation on the inward cross border M&A in developing countries.

1.5 Scope of study

In this study, the sample of countries is extracted the 11 developing countries (Brazil, Indonesia, Korea, Republic, Malaysia, Peru, Philippines, Thailand, Turkey, India, Vietnam and China) from 118 countries. It is because the 11 developing countries are the most attractive and main countries of inward cross border M&A.

The data regarding the inward cross border M&A of developing countries are collected from the period of year 2001 to 2015. The independent variables of this study are inflation rate, interest rate, SPI, GDP and exchange rate collected from the period of year 2001 to 2015.

1.6 Significance of Study

This study describes the theoretical background, in which states hypotheses and empirical predictions of the influence of macroeconomic factors on the inward cross border M&A. This study is important as it bridges the research gap in existing inward cross border M&A literature through analyzing the macroeconomic determinants, such as interest rate, SPI, GDP, inflation and exchange rate in the developing countries. The evidence on the previous study is mostly based on developed countries, but few in developing countries. So, this study is providing the evidence on the developing countries on the section of inward cross border M&A.

As from the previous literature background, this research will help to determine the relationship between cross border M&A and macroeconomic variables such as interest rate, exchange rate, SPI, GDP and inflation in developing countries. It able to help researchers to enhance understanding of developing countries behaviour and to contribute to cross border M&A flows.

In addition, this study can improve our understanding of the impact of the independent variables on the cross border M&A and it can be used by managers or implement decisions to control cross border M&A based on the correlation coefficient for each variable for cross border M&A in developing countries. The study will help academics and consultants conduct academic research in economic and finance

related flows and multinational managers involved in global strategic decision-making of cross border M&A.

Moreover, this study will help researchers to improve their knowledge of the whether macroeconomic determinants reflect to the cross border M&A. It will also help the economic and financial researchers to make further studies on cross border M&A by our achievements. Finally, the research results will add to the existing literature to be used as a reference by various academics to flow further research on this topic and other issues related.

1.7 Limitations

The research has the following limitations:

1) Not all macroeconomic indicators have been tested. The research is only confined to 5 macroeconomic indicators;

2) The research does not take into consideration other factors such as government legal position and cultural influencing the inward cross border M&A in developing countries;

3) The research only confined to 11 of developing countries.

CHAPTER TWO

EMPIRICAL LITERATURE REVIEW

2.0 Introduction

This chapter discusses the theoretical and empirical literature related to the influence of macroeconomic factors on cross border M&A.

Section 2.1 discusses the concepts of cross border M&A. Section 2.2 presents the theoretical literature review. The Section 2.3 presents the corporate finance theory related to cross border M&A. Section 2.4 discuses the empirical literature review followed by the conclusion in Section 2.5.

2.1 Concepts of cross-border mergers and acquisitions (cross border M&A)

Cross border M&A is a one of the fastest ways to enter a foreign market (Alba, Park and Wang, 2009). Other definition of cross border M&A is a merger or acquisition involves at least two companies from two different countries (Pablo, 2009). In the context of international management, cross-border M&A defines as acquirer companies and target companies with different headquarters (Shimizu et al., 2004).

The main occurrence of an M&A is the transfer of ownership, management and control rights from the target corporate to the acquiring corporate (Wubben, 2007). The aforementioned rights can change by either an acquisition of the target firm, or through a merger with another company (Berk &DeMarzo. 2007). Mergers, as well as acquisitions, are similar when referring to changes in the economic control

of an entity, but differ in the perpetuation of the legal existence of the target company (Wübben, 2007).

Merger appears as a procedure of negotiation involved in two companies result to the combination occurs become one company (Alexander, William and Peter, 2012). A merger refers to the strategy of combining two separate companies in order to create one, single corporation unit (Ogden, Jen & O'Connor, 2003) and to create a new legal entity (Wübben 2007). An acquisition happens when one company take ownership of another company by equity interests, stock or assets become one new company with or without negotiation procedure (Alexander, William and Peter, 2012).

The definition of an acquisition also can be used to describe the abovementioned action. The surviving firm could be seen as the acquirer or the bidder, whereas the deduct firm also can be named the acquired firm or the target (Ogden et al. 2003). The legal existence of at least one of firm is removed (Wübben, 2007) and frequently, the shares of one of the firms are extinguished, whereas the shares of the other remain outstanding.

Consequently, according Pablo (2009) cross border M&A needs to involve at least two companies from two different countries. Typically, the shareholders of the incorporated firm are compensated through shares of the existing firm or cash, whilst the surviving firm purchases the assets and liabilities of the defunct firm (Ogden et al. 2003). In general, mergers are only carried out by an affirmative, majority vote of the shareholders of both firms, governed by explicit laws (Wübben, 2007). However, in contrast to a merger, in an acquisition, the target firm is incorporated into the corporate group of the acquirer, leaving the legal existence of the target initially unaffected (Wübben, 2007).

M&A are characterized by higher valuations, with deep pockets of beneficiaries, often involving cash payments and hostile transactions, creating a complex process between the acquirer and the target firm (Hopkins, 1999; Moeller & Schlingemann, 2005). In addition, cross-border transactions can be either inward or outward.

Outward cross border M&A means that the investment outflow from a home company purchase a firm located in a foreign country. Inward cross border M&A is described as a home company acquired by the foreign company and receive the direct investment for host economy. Johansson and Kang (2000) indicated that inward and outward cross-border acquisition can be considered as sales in the perspective of economic.

When local companies are acquired by foreign multinationals, the host economies receive directs investment and this activity is referred to as inbound M&A. In contrast, when a local company acquires a foreign company, the investment outflow is called a cross-border external acquisition. From an economic point of view, inward (outbound) transactions are called sales (purchases) (Johansson and Kang, 2000).

In strategic and international business literature, the most common determinants of cross-border M&A include enterprise-level factors such as firm size, financial resources, transnational experience, local experience, product diversity and international strategy, industry and country-level factors (host market growth, cultural distance, exchange rates, GDP changes, political uncertainty, institutional law (Uddin and Boateng, 2011; Collins, Holcomb, Certo, Hitt, & Lester, 2009; Shimizu et al., 2004).

2.2 Theoretical Literature Review

2.2.1 Cross Border M&A Theories

According to Madura (2006), cross border M&A can be explained by three main common theories that namely, the imperfect markets theory, comparative advantage theory and the product cycle theory. The imperfect markets are the market where resource allocations cannot maximize the society's economic welfare. The imperfect markets take place in three situations. One of the situations is countries that are lack of the nature of certain goods and services. The second situation is when a party in a country has power that can prevent efficient transactions from occurring such as monopoly.

Imperfect market theory points out that the available resources vary from company to company. Therefore, due to restrictions, cross-company transfer of products is expensive. Therefore, due to imperfect market, companies have incentives to participate in international cross border M&A.

The theory of comparative advantage refers to the fact that an enterprise has advantages over other firms when it can produce the same products and services at a lower cost. The theory points out that the two companies can benefit from specialized services or products because they have major advantages. In some cases it may be desirable for a company to merge with or acquire a competitor in order to secure a greater degree of control over total sector output. If company A acquires company B, company A has achieved greater control over total sector production and also has the opportunity to maintain more of its own production facilities and employees within the new company at the expense of company B. The capacity reduction of the company can improve the competitive advantage of a country.

The third reason of cross border M&A is explained by the product life-cycle theory that was developed by Raymond Vernon (1966). The product life-cycle theory suggests that at the early product, a new product will first penetrate the domestic country but after the product can be accepted by the domestic country, it will move to the international market through the cross border M&A. A merger or acquisition can often provide a fast-track route to new and established markets. If a large high street bank merges with another bank, each bank acquires the customer base of the other bank. In some cases, the acquired customer base may represent a market that was previously unavailable. For example one bank may have previously specialised in business customers and the other bank in domestic customers. The new arrangement provides a more balanced customer base. Companies sometimes use M&A as a way to enter a desirable new market or sector, particularly if they expect the market or sector to expand in the future.

2.3 Corporate Finance Theory Related to Cross Border M&A

In the corporate finance, the conceptual model used in this research is similar to the capital budgeting model developed by Vasconcellos and Kish (1996) that used to examine the relationship between macroeconomic factors and inward cross border M&A. The capital budget model is one of several techniques used to measure the value of investing in long-term capital investment projects such as inward cross border M&A.

A capital budget or investment assessment is a planning process structure (debt, equity or retained earnings) that is used to determine whether long-term investments such as inward cross border M&A by a multinational enterprise are worth providing capital through the capitalization of the company. It is the process of allocating

resources for major capital or investment, expenditure.

In the capital budgeting model, one of the main objectives of investment is to increase the value of the company to shareholders. The process of analyzing and selecting the various capital expenditure proposals is called the capital budget. Companies invest in inward cross border M&A to expand production to meet anticipated demand, or to modernize production equipment to reduce costs.

Multinational companies used the net present value (NPV) from acquisitions (extracted from foreign currency) as a benchmark to decide whether involving in the inward cross border M&A. NPV is the value of all future cash flows minus the initial cost of the investment. Capital budget projects are divided into mutual projects or independent exclusive projects. An independent project is a project whose cash flows are not affected by acceptance or rejection decisions of other projects. Mutual exclusive projects are a group of items from which at most one item will be accepted. When a selection is made between "mutually exclusive items", more than one item may satisfy the capital budget criterion. However, only one, the best item can be accepted.

The NPV and internal rate of return (IRR) decision rules take into account all project cash flows and the time value of money. As we will see, only NPV decision rules will always result in correct decisions when selecting among mutually exclusive projects. This is because the NPV and IRR decision rules differ in their reinvestment rate assumptions. The NPV decision rule implicitly assumes that the project's cash flows can be reinvested at the company's capital cost, and the IRR decision rule implicitly assumes that cash flows can be reinvested in the project's IRR. Because each project may have different IRR, the NPV of the assumptions of the decision rule is more reasonable.

NPV is an indicator of how much number of inward cross border M&A adds to an enterprise. In financial theory, if there is a choice between two mutually exclusive alternatives, the one producing the higher NPV should be chosen. A positive net present value indicates that the projected income (in US $) generated by the project or investment exceeds the expected cost (also in current US dollars). In general, investments with positive NPV will be profitable, and investments with negative NPV will result in a net loss. This concept is the basis of the NPV rule, which states that the only investment that should be made is those with positive NPV values.

Below is the formula of the NPV.

$$NPV = \sum_{t=1}^{T} \frac{C_t}{(1+r)^t} + \frac{SV_T}{(1+r)^T} - C_0$$

where NPV = Net present value for the M/A;
C_t = Cash flows during period t;
r = Discount rate for the M/A;
SV_T = Salvage value of the M/A;
C_0 = Initial costs for M/A;
t = time period;
T = expected life of the project.

For the measurement of inward cross border M&A, the capital budgeting model incorporating the source of funds for the acquisition and exchange rate considerations:

$$NPV = \sum_{t=1}^{T} \frac{[(C_t)*(1-rr_t)*(ER_t)]}{(1+r)^t} + \frac{[(SV_T)*(ER_T)]}{(1+r)^T} - \left[EF_h + BF_h + BF_f * ER_0\right] \quad (2)$$

where rr_t = Proportion of cash flows retained to support future operations;
ER_t = Foreign exchange rate at time t;
EF_h = Equity funds in the home currency;
BF_h = Borrowed funds in the home currency;
BF_f = Borrowed funds in the foreign currency;

The model assumes that when the NPV is positive (and the capital constraint is not binding), the manager of the firm will accept the inward cross border M&A or the firm's proposal will be rejected.

Based on the formula of NPV, macroeconomic factors such as exchange rate, interest rate, GDP and inflation will affect the value of the NPV. Exchange rate will influence the proportion of cash flows retained to support future operations. The higher of exchange rate in the host country will lead to the lower cash flow and the NPV will be negative or lower and then cause lower numbers of inward cross border M&A.

The interest rate influence the borrowed funds and GDP affect the cash flows retained from the host country. The higher of the interest rate will cause NPV become negative or lower and then lead to lower numbers of inward cross border M&A. The higher of GDP means that greater economic demand in the host country which leads to the NPV positive and then cause higher numbers of inward cross border M&A.

Inflation will affect the time value money of the cash flows retained by the project. The lower of inflation rate will influence the NPV become higher and the lead to higher numbers of inward cross border M&A. SPI affect the return on the investment at the cash flow retained by the project. The higher of SPI means that higher of the cash flow retained from the inward cross border M&A and then NPV become positive. It forces the increasing of the inward cross border M&A activities.

2.4 Previous Empirical Works

A great degree of empirical studies using different samples in different countries suggested that cross border M&A determinants include economic performance (Jonathan and Fredrik, 2014), firm level factors (Gugler, Mueller and Micheal, 2012), political environment (Alessandro, Borchert and Mattoo, 2015) and cultural differences (Kenneth, Daniele , and Fracassi, 2011).

Erel et al. (2011) found that given that markets in different countries are not perfectly integrated, valuation differences across markets can motivate cross border M&A. One of the potential sources of value difference is the changes in currency value or exchange rates. For example, if the home currency appreciates in value relative to host currency, then firms from home country will find firms in the host country relatively cheaper leading to more acquisitions of firms in the host country. The above is consistent with the view put forward by Vasconcellos and Kish (1996) who suggest that the relative strength or weakness of the domestic currency pari-pasu the foreign currency plays an important role in the M&A decision-making process.

Inflation in economy affects both the return on investments and also the cost of capital and thereby affects the acquisition decision of any individual firm. McKinnon (1973) prove that at higher rates of inflation, money is more costly to hold, so the net return from investment is lower. On the other hand, Fisher's equation of nominal interest rate shows that nominal interest rate, which directly influences the cost of capital, is always higher than real interest rate in the presence of inflation. Therefore, the presence of high inflation in the home country reduces return on investments and increasing cost of capital hence discourages domestic acquisitions. The alternative, is for firm is to invest abroad where the inflation is lower. Lower

inflation in the host country relative to home country will help the volume of acquisitions activity. The lower inflation rate in home country attracts more inward M&A investments (sales), while higher inflation rate stimulate local firms to purse more outward M&A deals (purchases) in other countries where inflation rate is low (Uddin & Boateng, 2011).

A number of research have found a positive relationship between size of the host economy and FDI inflow, however, we know very little about the relation between size of the home economy and cross border M&A. According to the literature that relates Gross Domestic Product (GDP) with outward FDI, Uddin and Boateng (2011) and Agyenim, Ruthira and Moshfique (2011) states that a firm in a country with high GDP is well positioned to engage in international expansion through M&A. This is because higher GDP may result in higher level of cash reserve in the hands of firms which may encourage them to acquire companies abroad.

Micheal and Ashfaqul (2003) investigate the impact of macroeconomic factors. They examine wealth effects from 7 countries between 1987 and 1999. The study included macroeconomic variables such as interest rate, exchange rates, government bond yields and stock markets index. The authors concluded that all the variables are influence the cross border M&A. The study found that interest rates, exchange rates and government bond yields on cross-border mergers and acquisitions have a positive impact, but the stock market index has a negative impact on cross border M&A.

Kiymaz (2004) examined 207 cross border M&A transactions between 1989 and 1999 and analyzed cross-border M&A by examining macroeconomic factors such as economic conditions, level of economic development and exchange rate volatility.

In addition, it includes company and transaction factors. The results show that macroeconomic factors are important in clarifying the wealth effect of cross-border M&A. Kiymaz (2004) found that foreign economic conditions and exchange rate fluctuations have a negative impact on cross-border M&A. The correlation between foreign exchange strength and GDP growth does not seem to affect cross-border M&A.

Agyenim, Ruthira and Moshfique (2011) analysed the number of cross border M&A inflows between 1987 and 2008 into the UK from a macroeconomic perspective. The main finding is that the inflow reaction is asymmetric because it is more persistent with the recession during the stock market boom. The asymmetry of relative prices suggests that mergers of liquidity activity appear to be higher once the stock price rises above the 8% threshold level. Other factors that have a significant impact on cross border M&A flows are real GDP growth rates and growth rates.

Kamal (2013) examine the macroeconomic determinants will affect cross border M&A in the advanced emerging market acquiring firms. Event study and regression analysis are applied for the study period 2000-2011. The result shows six macroeconomic determinants such as foreign exchange rate, Gross domestic product (GDP), Corporate tax rate have a positive relationship with the cross border M&A and are statistically significant for the advanced emerging market scenario.

Jonathan and Fredrik (2014) carried out another study that investigates the impact of macroeconomic factors. They examining the extent to which macroeconomic & cultural factors influence cross-border M&A as well as whether there are any differences between developed and developing countries. This studies using the data from cross-border M&A transactions during 1997-2012 on foreign

targets. The study includes macroeconomic variables such as GDP, interest rate, inflation, exchange rate, political stability, culture, firm variables, deal variables, geographical variables and industry variables. The authors concluded that the macroeconomic factors such as GDP, SPI, inflation, interest rate and exchange rate have significant influence the cross border M&A in the developing countries but are not significant in the developed countries.

2.5 Conclusion

This chapter presents mainly the literature of the variables under study. Regarding to this chapter, there are many studies regarding the relationship between macroeconomic factors (interest rate, inflation, exchange rate, SPI and GDP) and inward cross border M&A (Uddin and Boateng, 2011; Agyenim, Ruthira and Moshfique, 2011; Kiymaz, 2004; Kamal ,2013). A few of the studies are carried out in the developing countries (Jonathan and Fredrik , 2014; Uddin and Boateng, 2011). Moreover, this study also focuses that whether the findings of a relationship will be supported by the theories that proposed in this chapter.

CHAPTER THREE

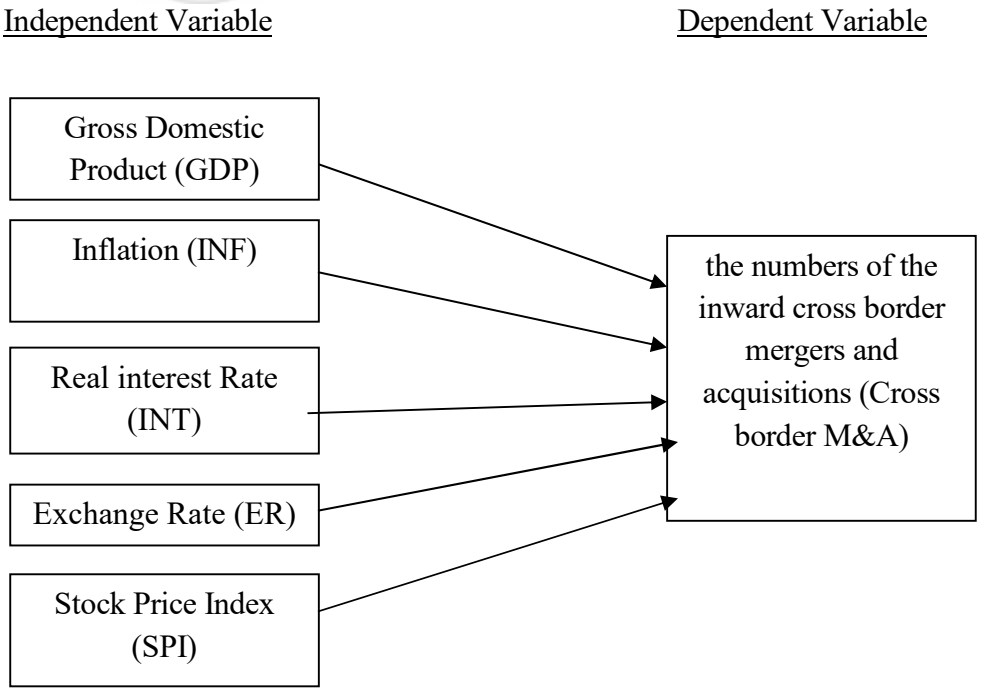
RESEARCH METHODOLOGY

3.0 Introduction

This chapter centres on the methods used in the research work and outlines the relationship cross-border M&A and the four macroeconomics variables. The chapter starts with discussion on the theoretical framework of the study in Section 3.1, followed by empirical models in Section 3.2. Section 3.3 is presents research method and Section 3.4 presents data sources.

3.1 Theoretical Framework

In this research, the independent variables are exchange rate,inflation , SPI, Gross Domestic Product (GDP) and real interest rate the whereas the dependent variable is the numbers of the inward cross border M&A. The thereotical framework is as follows:-



The framework is based on the above-mentioned independent variables (exchange rate,inflation , SPI, Gross Domestic Product (GDP) and real interest rate) together were tested against the dependent variable of to the numbers of the inward cross border M&A find out which macroeconomic variables played a role in the 15 years (2001-2015) for 11 developing countries.

In this research, the following hypotheses are to be tested:-

3.1.1 Gross Domestic Product (GDP)

GDP growth rate is typically used as a proxy for the level of real economic activity. It is theoretically shown that the productive capacity of an economy rises during economic growth, which in turn contributes to the ability of firms to generate cash flows.

Based on the capital budgeting model, the GDP of a country will affect the home country market size and then influence the cash flow of the firm. The higher the cash flow, the higher the value of NPV, and then increase inward cross border M&A activities. If a country have a higher GDP means that the country have a greater aggregate income and more market size, it will give the potential market to the firm for expand their inward cross border M&A activity. Since a large market size of home country indicates greater aggregate income and ability to invest abroad (according to Dunning 1981), the positive relationship between inward cross-border M&A and home market size is expected. However, it is possible that the limited market size in home countries may stimulate home country firms to seek other potential markets and expand their market share so that a negative relationship between inward cross-border M&A purchases and home market size is also plausible. According to the market-

seeking (FDI) argument, a positive relationship between host-country market size and inward cross-border M&A is expected (Douglas, 2011).

Ali-Yrkko (2002) argues that the larger economies reflected in the size of GDP will influence firms to engage in more acquisitions. This is because higher GDP growth means greater economic demand, which can lead to economic redistribution of its resources to ensure its optimal use. This reallocation of resources motivates the formation of mergers and acquisitions in the economy. The positive impact of GDP on the total flows of inward cross border M&A was supported by Resende (2008), Nakamura (2004) and Crook (1995), who concluded that there is a positive correlation between GDP and inward cross border M&A activity.

In the context of inward cross-border mergers and acquisitions, some scholars have reached a similar conclusion. Anand and Kogut (1997) and Globerman and Shapiro (1999) show that an increase in GDP in the host country will lead to more inward acquisitions because of the higher demand in the host economy and the potential for high profit margins. On the other hand, Healy and Palepu (1993) argue that higher GDP may lead to higher levels of cash reserves in the hands of local firms that may eventually spend excess funds to acquire local firms to increase their size and gain market power.

In addition, the availability of cash reserves in local companies may be considered to lead to increased competition between local and foreign acquirers, leading to overvaluation of the target. In view of the market imperfections of products and services in global markets such as transaction costs, barriers to entry costs and “foreignness" liabilities, acquisitions may favour domestic acquisitions when involving local and foreign acquirers. It can be argued that the relationship between gross domestic product and inward cross-border M&A may be negative because

domestic firms may be cheaper to invest in their home countries than abroad and bear transaction costs due to risks and liabilities of "foreignness" associated with foreign investment.

A number of research have found a positive relation between size of the host economy and FDI inflow but there are very little about the relationship between size of the home economy and inward cross border M&A. According to the literature that relates GDP with outward FDI, Agyenim, Ruthira and Moshfique (2011) states that a firm is well positioned to engage in international expansion through inward cross border M&A. This shows that higher GDP may result in higher level of cash reserve in the hands of firms which may encourage them to acquire companies abroad.

Jonathan and Fredrik (2014) argued that GDP is not significant in influencing inward cross border M&A in the developing countries because of possible negative market reaction to transactions in countries with high GDP per capita, as these countries are likely to have higher labour costs, so any acquisition may increase the cost of the acquirer beyond the initial expectations.

H_1: There is a significant relationship between Gross Domestic Product (GDP) and inward cross border M&A in developing countries.

3.1.2 Inflation

Inflation defines as the rate that sustained increase of the general level of prices of goods and services and the purchasing power is decline (Blanchard and Olivier, 2007) .Inflation will also be used to determine a rising price level within a narrower set of assets, goods or services or Consumer Price Index (CPI) in an

economy, such as commodities (including food, fuel, metals), tangible assets (such as real estate), financial assets (such as stocks, bonds), services(such as entertainment, and health care) or labour.

According to the previous study, the inflation rate as a factor that influences the inward cross border M&A activity. The change of inflation rate will influence the price of the targets acquiring firm and the cost of debt. Based on the capital budgeting model, the lower inflation rate will lead the initial cost of the targets firm become lower and then lower the cost of debt. The lower of the initial cost of merger and acquisition can encourage higher NPV. It will force the flow of inward cross border M&A activity in a country higher. So, if the inflation rate in a country is higher, it should not attract the inward cross border M&A activity.

When the home country has a higher inflation rate will make domestic acquiring target expensive and will encourage potential acquirers invest in the other foreign countries that has lower inflation rate. Although the inflation is a important determinants for the inward cross border M&A activity, there are less of the researches on this issue in the UK and US content. Given the consistently lower inflation rates in the UK over the past decade, it proves that the inflation rate will influence the rising trend of inward cross border M&A in the UK.

Nelson (1959) found a negative correlation between changes in the inward merger activities and changes in the inflation rate. The lower inflation rate in the home country is a strong determinant of the growth of the inward cross border M&A activity in the late 1999s (Black, 2000). Jonathan and Fredrik (2014) argued that inflation is not significant in influencing inward cross border M&A in the developing countries due to the insufficient numbers of observations or non-linear relationship in the sample.

H_2: There is a significant relationship between inflation (INF) and inward cross border M&A in developing countries.

3.1.3 Real interest rate

Real interest rate is other important economic measurements that indicate the health of the economic condition in a country. In any inward cross-border M&A deal, real interest rate is an important component is the financing of the transaction. Yang, Groenewold, &Tcha (2000) and Jeon and Rhee (2008) found further evidence by concluding the role of interest rates in attracting inward cross-border M&A to be important.

Forssbaeck & Oxelheim (2008) and Pablo (2009) claim that the capacity and propensity for a firm to carry out inward cross-border M&A transactions investment can be explained by the cost of capital and access to finance. For example, accessibility to lower cost of external funds yields a financial synergy and thus increases the probability of deals.

According to the capital budgeting model, the real interest rate will influence the cost of financing or the initial cost for M&A in the NPV equation. The lower of the real interest rate in a home country means that reduce the initial cost for the M&A and then the value of NPV become higher. It will lead to the firm more prefer to invest and increase the inward cross border M&A activity in a country.

Previous research states that the correlation between inward cross border M&A activity and interest rates shows that lower interest rates reduces the cost of financing in the acquirer country because of the wealth of capital and thus encourages

profitability of international expansion (Tolentino, 2010). There is a possibility to gain financial synergy through access to external funds at a lower cost of capital in the acquirer country and secondly, competitors in the target country have to use more expensive ways of raising capital (Agyenim, Ruthira and Moshfique, 2010).

Melicher et al (1983) argued that the negative relationship between inward cross border M&A and interest rates. The lower interest rates reduce financing costs and encourage more inward cross border M&A. Micheal and Ashfaqul (2003) also found that the lower real interest rate will increase the inward cross-border M&A activity. In the relationship between inward cross border M&A and interest rates, Kish and Vasconcellos (1993) showed that increase of interest rates in the host country influence the flow of inward cross border M&A.

Jonathan and Fredrik (2014) argued that interest rate is not significant in influencing inward cross border M&A in the developing countries. It is possible to obtain financial synergies by acquiring external capital at a lower cost of capital in the acquiring country, and the target country must use more expensive The way to raise capital seems to increase the wealth creation of the acquirer.

H_3: There is a significant relationship between real interest rate (INT) and inward cross border M&A in developing countries.

3.1.4 Exchange rate

According to the capital budgeting model above, exchange rate as an important variable that will influence the NPV value. When the exchange rate in the home country is appreciate, it will lead the borrowing funds in the foreign country become lower and the value of NPV will become higher. The higher of the value of NPV will cause the more inward cross border M&A activity in a country. Countries that have a strong currency tend to invest in foreign countries but countries that have a weak currency tend as a recipient of the FDI (Aliber, 1970; Caves, 1988; Froot and Stein, 1991). It showed that a countries exchange rate as a factor that reflect to the inward cross border M&A. Weston (2001), Rad &Corhay (2000) and Goergen & Renneboog (2004) declared that the proposition between exchange rate of a country and the inward cross border M&A.

These studies declare that the firm from the appreciating currency country become an acquirer and the firm from the depreciating country as a target. If the home currency depreciates in value relative to host currency, then firms from home country will find firms in the host country relatively expensive leading to less acquisition of firms in the host country. The above is consistent with the view put forward by Vasconcellos and Kish (1996) who suggest that the relative strength or weakness of the domestic currency pari-pasu the foreign currency plays an important role in the inward cross border M&A decision-making process.

The relatively strong of the host currency will have a negative impact on attracting the inward cross border M&A. However, inward of cross border M&A should be positively affected because the weak currency home country may depress the other remittances and repatriated profit (Vasconcellos and Kish, 1996). Micheal

and Ashfaqul (2003) argued that the negative effects of exchange rate in the inward cross border M&A. Kiymaz (2004) found that the acquirer would benefit from a strong domestic currency during the transaction and a weaker domestic currency when dividends and cash flows are returned.

Jonathan and Fredrik (2014) argued that exchange rate is not significant in influencing inward cross border M&A in the developing countries. This is because the overall impact of the exchange rate on the acquirer remains relatively unknown based on theoretical or quantitative observations, as the expected future cash flows are a function of future exchange rates.

H_4: There is a significant relationship between exchange rate (ER) and inward cross border M&A in developing countries..

3.1.5 Stock Price Index (SPI)

Stock price index is a statistics figure based on the current stock market price of the index's components. SPI is measure the value of a certain group of shares on the price of the selected stocks. Financial managers and investors will use the SPI as a benchmark to compare the return on the inward cross border M&A and describe the market performance in a country.

SPI plays an important role in the inward cross border M&A (Weston, 1953; Nelson, 1959; Vasconcellos and Kish, 1996). The higher of the SPI demonstrate the possibilities of future financial development and then more numbers of inward cross border M&A exercises. This result similar in the Weston (1953) indicated that positive relationship between SPI and cross border M&A.

Nelson (1959) found a positive correlation between inward cross border M&A and SPI in the M&A activities in the U.S. market during 1895–1920. Geroski, (1984)

and Evenett (2003) have support that there is positive relationship between inward cross border M&A and SPI. Melicher et al. (1983) and Benzing (1991) also argue that lower stock prices index indicate the prospects of future economic drop and consequently lower level of inward cross border M&A activities.

Besides, Vasconcellos and Kish (1998) found that a discouraged U.S. securities exchange in respect to outside stock exchange supports remote of acquisitions of U.S. companies. Golbe and White (1993) and McCann (2001) found that the higher the U.K. stock market index, the less of the U.K. inward cross border M&A. The negative relationship between SPI and inward cross border M&A was not statistically significant (McCann, 2001).

Agyenim, Ruthira and Moshfique (2011) state that SPI play an important role in the inward cross border M&A. The result shows there are positive relationship between SPI and cross border M&A. The higher of the growth of the SPI in a country, the more inward cross border M&A happen.

H_5: There is a significant relationship between Stock Price Index (SPI) and inward cross border M&A in developing countries..

3.2 Empirical Models

$$In\ INCBMA_{it} = \beta_0 + \beta_1\ InGDP_{it} + \beta_2\ In\ INF_{it} + \beta_3\ In\ INT_{it} + \beta_4\ In\ ER_{it} + \beta_5\ In\ SPI_{it} + \mu \quad \text{(Eq. 3.6)}$$

where;

INCBMA = the numbers of the inward cross border mergers and acquisitions (Cross border M&A)

The numbers of inward cross-border M&A is the numbers determined by the United Nation Conference on Trade and Development (UNCTAD) or the values of cross-border M&A determined in the legally by the World Investment Report. It is calculated as an annually (local currency units relative to the U.S. dollar).

GDP = Gross Domestic Product

The gross domestic product (GDP) calculated at the buyer's price is the sum of the total value added by all the producers in the economy and the sum of any product taxes minus any subsidies not included in the value of the product. It is excluding depreciation of manufacturing assets or depletion and degradation of natural resources. The data is currently in US dollars. The dollar figures for gross domestic product (GDP) are converted from domestic currencies using a single official annual exchange rate. The data is obtained from the Datastream.

INF = Inflation

Inflation measured by the consumer price index reflects an annual percentage change in the cost per basket of goods and services that an average consumer determines or changes at specific intervals every year. Normally use the Laspeyres formula. The data is obtained from the World Bank indicators.

INT = Real interest Rate

The real interest rate is the inflation rate measured according to the GDP deflator. The terms and conditions of these rates vary from country to country, but limit their comparability. The data is obtained from the World Bank indicators.

ER = Exchange Rate

Real effective exchange rate refers to the exchange rate determined by the national authorities to determine the exchange rate or the exchange rate of the statutory system. It is the annual average based on the monthly average (local currency units relative to the dollar). The data is obtained from the World Bank indicators.

SPI = Stock Price Index

Stock price index is the measurement of the figures of a certain groups of the stock market. It is computed from the prices of selected stocks (typically a weighted average). The data is obtained from the DataStream.

3.3 Research Methods

3.3.1 Descriptive Statistics

The descriptive statistics is important for us to summarize a sample in an understandable and clear way. Descriptive statistics are statistical data that quantitatively summarize or describe the characteristics of a collection of information (Mann and Prem S., 1995). Descriptive statistics are different from inductive statistics (or deductive statistics) because descriptive statistics are intended to summarize the sample rather than the use of data to understand the groups that the data samples are considered to represent. Descriptive statistics presents the mean, median, maximum, minimum and standard deviation of the variables.

3.3.2 Panel Unit root Test

Unit root test is used to test whether the data of variables are stationary or not. The null hypothesis of the variables can be accept or reject by using this method. If the absolute test statistics is more than critical value (absolute), then we can accept null hypothesis and accept alternative hypothesis. If the test statistics is less than critical value, we cannot reject null hypothesis. If the probability value is less than 5%, we can reject the null hypothesis and accept alternative hypothesis.

This study conducts two panel unit root tests, namely Levin Lin and Chu (2002) and Im, Pesaran and Shin (2003). Im, Pesaran and Shin (2003) examine the weights of evidence against the joint null hypothesis and the proportion for which the individual tests that caused the rejection. Levin Lin and Chu (2002) tests the common alternative hypothesis. Before the joint null will be rejected, the evidence against the non-stationary null in one series is required.

3.3.3 Correlation Test

This correlation method is done to determine whether the two dependent variables and independent variables have a significant relationship or otherwise. In this study, the correlation analysis is used to test the hypothesis. This test can indicate the degree of relationship between two variables, the degree of relationship which is the number r -1.00 to +1.00. Correlation coefficient (r) value -1.00 to mean that there is a negative relationship between two variables. If the correlation coefficient (r) value of +1.00, there is a positive relationship between the two variables. However, if the correlation coefficient r is 0, then this shows that it does not exist. According to the Hinkle, Wiersma, &Jurs (2003), when the significant value less than 0.01 in the correlation test means there is a relationship between two variables. Besides that, the R-value that is correlation coefficient indicates the strength of the relationship between two variables (Hinkle, Wiersma, &Jurs, 2003). The table below shows that correlation coefficient of the strength relationship between two variables.

Guidelines of strength of relationship

Size of Correlation	Interpretation
0.90 to 1.00 (-0.90 to -1.00)	Very high positive (negative) correlation
0.70 to 0.90 (-0.70 to -0.90)	High positive (negative) correlation
0.50 to 0.70 (-0.50 to -0.70)	Moderate positive (negative) correlation
0.30 to 0.50 (-0.30 to -0.50)	Low positive (negative) correlation
0.00 to .030 (0.00 to -0.30)	Little if any correlation

3.3.4 Panel Least Square

Panel Least Square is a statistical method that is widely used in econometrics, epidemiology, and social sciences to analyze two-dimensional (usually longitudinal and cross-section) panel data (Maddala, G.S., 2001). This studies estimates model specification in order to observe the effect of the macroeconomic factors on the inward cross border M&A.

To observe the model in this study, we run the pooled ordinary least square (OLS) earlier. Pooled OLS have no general effect for the whole time, and there is no unique attributes. The pooled OLS regression assumes that the intercepts are the same for each country and for each year, which will be an inappropriate assumption. So, we could instead estimate a model with fixed effect estimator (FE) that allows the latent time-specific heterogeneity.

The fixed effect model is a statistical model that represents the observation, which is considered to be non-random in terms of explanatory variables. FE explores the relationship between predictors and outcome variables between entities (individuals, companies, countries, etc.). Each entity has its own personal characteristics, which may or may not affect the predictor.

The equation for the FE model:

$$Yit = \alpha + \beta Xit + \lambda t + vit \qquad \text{(eq.1)}$$

Where , α is the unknown intercept for each entity, Yit is the dependent variable (DV), i = entity and t = time. λt represents time-variant repressor, β is the coefficient for that IV, vit is the error term.

After get the results of the FE, we need to run a redundant fixed effects test for determine the null hypothesis of fixed effects are redundant or not. Three different redundant fixed effect tests is employed, each in both X^2 and F-test version, for restricting the cross-section fixed effects to zero, the period fixed effects to zero and both types of fixed effects to zero. If all the results of p-value are equal to zero means that the null hypothesis of redundant fixed effects can be rejected on a 5% level, indicates that the pooled OLS could not be employed and need to run the Random effect estimator (RE) and the Hausman test (HT).

The RE model is also called the error component model, which is a hierarchical linear model. It assumes that the data being analyzed is derived from the hierarchical structure of the different populations that differ from the hierarchical structure. In econometrics, the RE model is used to analyze hierarchical or panel data when FE are not considered (allowing personal effects). The RE method makes a different intercept term for each entity, and the intercept changes with time. The relationship between the explanatory and explanatory variables is assumed to be the same in both the cross-section and time.

The equation for the RE model becomes:

$$Yit = \alpha + \beta Xit + wi, wit = \varepsilon i + vit \quad \text{(eq.2)}$$

Where , α is the unknown intercept for each entity, Yit is the dependent variable (DV), i = entity and t = time. Ɛ is random deviation, β is the coefficient for that IV, – vit is the error term.

Before performed the HT, FE and RE model need to perform earlier. HT is to examine whether the FE or the RE have be choose. If the p-value of HT is significant

at level of 5%, the FE is the best estimator. If the p-value of HT is not significant at level of 5%, the RE is the best estimator. If the FE is been chosen, then check the Heteroscedasticity test or Breusch-Pagan test.

Breusch-Pagan test is to examine whether the variables is heteroscedasticity or not. If the result of Breusch-Pagan test is significant, the problems is exists in the variables. Then, this study need to rely on the Robust Least Square as the final result.

3.4 Data Source

The data comprises annually observations from 2001 to 2015 for 11 developing countries (Brazil, Indonesia, Korea, Republic, Malaysia, Peru, Philippines, Thailand, Turkey, India, Vietnam and China). All data is obtained from the World Bank indicators, World Investment Indicators and DataStream.

The variables were selected on the basis of previous empirical literature and theories. (The study incorporates a total of 5 macroeconomic variables as indicated in Table 1. The absolute figures were transformed into percentages of changes for synchronisation and to make testing procedures valid.

The study sample frame comprised all 11 developing countries from year 2001-2015. 11 developing countries were selected randomly from the sample frame in order to represent the entire population of the research work (Krejcie & Morgan, 1970). The developing countries as a home country to observe the macroeconomic factors in foreign countries will affect the cross-border M&A activity. There are the countries that have been choosing for the research.

Table 3.4 *List of Developing Countries*

Brazil, Indonesia, Korea, Republic, Malaysia, Peru, Philippines, Thailand, Turkey, India, Vietnam and China.

The behavioural patterns of the independent variables with the dependent variable are analysed by conducting a trend analysis with graphs plotted from Excel worksheet whereas the hypotheses are tested through statistical analysis using the EViews 8 program where the output of mean, standard deviation, correlations, R squared and coefficient are obtained. The EViews program will make arrange the information and data into more simplified form to help the reader understand it. This program will explain the finding of the study which answers the objectives research questions. The method such as regression analysis, multicollinearity, heteroscedasticity and serial correlation can show the finding. Then it will transform in table, bar chart, pie chart and so on.

To examine the influences of macroeconomic factors (exchange rate,inflation, SPI, GDP and interest rate) on the inward cross border M&A, this research used four methods to examine the research objective. The methods that used are unit root test, descriptive Statistics, correlation test and panel least square.

CHAPTER FOUR

EMPIRICAL RESULTS

4.0 Introduction

For this chapter, this paper is discuss the findings after computing the analysis of the relationship between macroeconomic factors (GDP, interest rate, inflation and exchange rate) and cross border M&A. There are five sections of this chapter. First section of the chapter describes the preliminary results descriptive statistics of each independent, dependent, and control variables. The second section of the chapter explains the stationary of the variables. The third section the correlation between macroeconomic factors and cross border M&A. The fourth section interprets the findings of the regression analysis in order to investigate whether the results are consistent with hypotheses that developed in Chapter Three. The fifth section illustrates about the summary of the study that includes the empirical findings of the results. Sixth section provides the implication of the present study according to the computed results. The last section explains about the recommendations of the future research.

4.1 Descriptive Statistics

The descriptive statistics is important in order to know the trends of the variables used for better understanding. The table 4.1 shows the results of descriptive statistics of all variables. It presents the mean, median, maximum value, minimum value and standard deviation of all variables. The total samples used for this study are 11 developing countries and the period of study covers 2001-2015.

Table 4.1 *Results of Descriptive Statistics of Variables.*

Variables	Mean	Median	Maximum	Minimum	Standard Deviation
INCBMA	3.3607	3.3676	5.8528	0.0000	1.3798
ER	3.9054	3.5351	9.9860	0.2034	3.2045
GDP	25.1673	26.5494	30.0198	7.5490	5.5052
INF	1.3721	1.4122	3.9968	-1.6445	0.8190
INT	1.7116	1.5915	4.0780	-1.0918	1.0499
SPI	7.9068	7.5488	11.5789	4.9103	1.5042

Note: INCBMA =Inward cross border merger and acquisition; ER =Exchange rate ; GDP=Gross Domestic Product; INF= Inflation, INT= interest rate and SPI= Stock Price Index.

The table 4.1 shows the average of the inward cross border M&A is about 3.3607 and a standard deviation of about 1.3798. This indicates that there is a low dispersion in inward cross border M&A in the developing countries. The maximum number of inward cross border M&A is 5.8528 and the minimum number of inward cross border M&A is 0.

For an independent variable, the average local currency unit relative to the U.S. dollar for exchange rate is US3.9054. Through the further observation, the maximum local currency unit relative to the U.S. dollar for exchange rate is about US9.9860 and the minimum local currency unit relative to the U.S. dollar for exchange rate is about US0.2034. The second independent variable is GDP shows the average value of around US25.1673. As the table above shows that the highest GDP achieves US30.0198, and the lowest GDP is US7.5488.

The third explanatory variable that is inflation shows the average percentage is about 1.3721%. The maximum percentage of inflation is 3.9968% and the minimum percentage of inflation is -1.6445%. The fourth independent variable is interest rate shows the average percentage is about 1.7116%. The maximum percentage of interest rate is 4.0780% and the minimum percentage of interest rate is -1.0918%. The fifth

independent variable is SPI shows the average percentage is about 7.9068. The maximum percentage of interest rate is 11.5789 and the minimum percentage of interest rate is 4.9103.

4.2 Panel Unit root Tests

This study conducted two unit root tests, namely Levin, Lee and Chu (2002) (hereafter LLC test) and Im, Pesaran, and Shin (2003) (hereafter IPS test). Table 4.2 shows the outcomes of the unit root tests of inward cross border M&A, inflation, interest rate, SPI, GDP and exchange rate. From the results table, LLC test under constant model indicates that the p-value for INCBMA, GDP, INF, INT and SPI at level are significant at the 5% level. Therefore, these variables are stationary at level. LLC test under constant and trend model indicates that the p-value for INCBMA, GDP, ER, INF, INT and SPI at level are significant at the 5% level. Therefore, these variables are stationary at level. Similarly, IPS test under constant model indicates that indicates that the p-value for INCBMA, GDP, ER, INF, INT and SPI at level are significant at the 5% level. Therefore, these variables are stationary at level. IPS test under constant and trend model indicates that indicates that the p-value for INCBMA, GDP, ER, INF, INT and SPI at level are significant at the 5% level. Therefore, these variables are stationary at level.

Table 4.2 *The Panel Unit Root Tests*

Variables	**Level**				**First difference**			
	Constant		Constant & trend		Constant		Constant & trend	
	LLC	IPS	LLC	IPS	LLC	IPS	LLC	IPS
INCBMA	-3.52*	-1.90**	-9.84*	-8.60*	-3.29*	-0.63*	-11.98*	-9.19*
	(0.00)	(0.03)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
ER	0.38*	1.81**	-4.20*	-2.47*	2.51*	3.86*	-5.67*	-1.69**
	(0.01)	(0.05)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.05)
GDP	-4.44*	-0.84**	-4.36*	-2.88*	3.34*	5.66*	-7.62*	3.16*
	(0.00)	(0.05)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)
INF	-5.78*	-4.28*	-9.84*	-8.84*	-5.32*	-2.29*	-12.22*	-9.26*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
INT	-3.54*	-2.82*	-13.53*	-11.35*	-5.96*	-2.47*	-12.88*	-9.69*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)
SPI	-3.49*	0.04**	-14.06*	-10.81*	-5.11*	-1.66**	-12.13*	-8.22*
	(0.00)	(0.05)	(0.00)	(0.00)	(0.00)	(0.05)	(0.00)	(0.00)

Note: INCBMA =Inward cross border merger and acquisition; ER =Exchange rate; GDP=Gross Domestic Product; INF= Inflation, INT= interest rate and SPI= Stock Price Index. All variable are in natural logarithms. The figure show parenthesis represents p-value * and ** indicate 1% and 5% significance level, respectively.

For exchange rate, the value of probability is significant at the 5% level means that exchange rate can reject null hypothesis and the data is stationary. The probability of GDP is less than 5%, we can reject null hypothesis and the data is stationary. For the inflation, the probability is significant at the 5% level means that we can reject the null hypothesis and the data is stationary. The probability of interest rate is significant at the 5% level means that we can reject null hypothesis and the data is stationary. For the SPI, the probability is significant at the 5% level means that we can reject the null hypothesis and the data is stationary.

In the unit root test shows that the probabilities of all variables at level are significant at the 5% level, we can reject null hypothesis and the data is stationary.

4.3 Correlation Test

Table 4.3 shows the correlation matrix between pair of variables. The results show that there is positive correlation between cross border M&A and GDP. The p-value is significant at 5% level. It can be explained that an increase in the level of GDP leads to an increase in inward cross border M&A in developing countries. This result same with previous studies by Ali-Yrkko (2002), Resende (2008), Nakamura (2004) and Crook (1995), in which states that higher GDP will influence firms to engage in more inward cross border M&A. The correlation results also show that there is a negative relationship between exchange rate and inward cross border M&A. This implies that a depreciation of exchange rate leads to more inward cross border M&A. This result same with previous studies by Micheal and Ashfaqul (2003), in which strong of the host currency will have a negative impact on attracting the inward cross border M&A.

Table 4.3 *The Coefficient Correlation of Variables*

	INCBMA	ER	GDP	INF	INT	SPI
INCBMA	1.0000					
ER	-0.3643***	1.0000				
	(0.00)					
GDP	0.1726**	-0.01594	1.0000			
	(0.03)	(0.84)				
INF	-0.1736**	0.1051	0.2154***	1.0000		
	(0.03)	(0.18)	(0.01)			
INT	-0.1828**	-0.3677***	0.1407*	0.1128	1.0000	
	(0.02)	(0.00)	(0.07)	(0.15)		
SPI	0.1378*	-0.6031***	0.3559***	0.3329***	0.4964***	1.0000
	(0.08)	(0.00)	(0.00)	(0.00)	(0.00)	

Note: INCBMA =Inward cross border merger and acquisition; ER =Exchange rate; GDP=Gross Domestic Product; INF= Inflation, INT= interest rate and SPI= Stock Price Index. All variable are in natural logarithms. The figure show parenthesis represents p-value ***, ** and * indicate 1%, 5% and 10% significance level, respectively.

From Table 4.3, the results show that there is a significant negative correlation between interest and inward cross-border M&A. It means that lower real interest rate will increase the inward cross-border M&A activity. This result supports the similar result obtained by Micheal and Ashfaqul (2003). The results also show that there is significant negative correlation between inflation and inward cross- border M&A. This result same with the previous studies by Nelson (1959) and Black (2000), in which the lower inflation rate in the home country is a strong determinant of the growth of the inward cross border M&A activity. Lastly, the results show positive correlation between SPI and inward cross border M&A. It means that the higher SPI will increase the inward cross-border M&A activity. This result is in line with the result obtained by Micheal and Ashfaqul, (2003).

4.4 Estimated Results from Panel Regression

In order to know the appropriate estimator for the study's model, the study first run the pooled ordinary least square (OLS) and the results are given in Table 4.4.There are three variables (exchange rate, GDP and interest rate) and constant term that are significant.

Table 4.4 *Results Of Pooled Ordinary Least Square (OLS)*

Variables	**Dependent Variable: Inward cross border merger and acquisition**			
	Pooled OLS			
	Coefficient		**t-statistics**	**P-value**
Constant	3.926056	***	5.239854	0.0000
ER	-0.216191	***	-5.383602	0.0000
GDP	0.063676	***	3.481093	0.0006
INF	-0.201787		-1.624196	0.1063
INT	-0.493875	***	-4.932040	0.0000
SPI	-0.025477		-0.255298	0.7988
Adjusted R-squared	0.291583			
F-statistic	14.50039			
Number of Observations	165			
Durbin-Watson Stat	0.322579			

Note: INCBMA =Inward cross border merger and acquisition; ER =Exchange rate; GDP=Gross Domestic Product; INF= Inflation, INT= interest rate and SPI= Stock Price Index. All variables are in natural logarithms. The figure show parenthesis represents p-value ***, ** and * indicate 1%, 5% and 10% significance level, respectively.

Then, we use the redundant fixed effect test to determine whether pooled OLS is better or not. To do this, the study estimates the model using fixed effect estimator (FE) and conducts redundant fixed effect tests. Under the redundant fixed effect test, three tests are to be considered. These are test for cross section effect, period effect, and cross section and period effects. Three different redundant fixed effect tests is employed, each in both X^2 and F-test version, for restricting the cross-section fixed effects to zero, the period fixed effects to zero and both types of fixed effects to zero. This results of p-value are equal to zero means that the null hypothesis of redundant fixed effects can be rejected at 5% level Table 4.5 shows the results obtained from FE while Table 4.6 shows the results of redundant fixed effect test.

Table 4.5 *Results of Fixed Effect Estimator*

Variables	**Dependent Variable: Inward cross border merger and acquisition**			
	Fixed effect estimators			
	Coefficient		**t-statistics**	**P-value**
Constant	-7.002570	**	-2.162130	0.0322
ER	-0.534262	*	-1.831126	0.0691
GDP	0.429460	***	3.137539	0.0021
INF	0.011610		0.174163	0.8621
INT	0.014579		0.199353	0.8423
SPI	0.202418	*	1.899051	0.0595
Adjusted R-squared	0.8868			
F-statistic	77.81696			
Number of Observations	165			
Durbin-Watson Stat	1.477204			

Note: INCBMA =Inward cross border merger and acquisition; ER =Exchange rate; GDP=Gross Domestic Product; INF= Inflation, INT= interest rate and SPI= Stock Price Index. All variables are in natural logarithms. A superscript *, ** or *** indicates significance at the10%, 5% or 1% confidence levels, respectively.

Table 4.6 *Results of the Redundant Fixed Effect Tests*

Effects Test	Statistic	d.f.	Prob.
Cross-section F	71.8147	-10135.0000	0.0000
Cross-section Chi-square	304.2035	10.0000	0.0000
Period F	1.4923	-14135.0000	0.1219
Period Chi-square	23.7417	14.0000	0.0492
Cross-Section/Period F	33.7852	-24135.0000	0.0000
Cross-Section/Period Chi-square	321.2227	24.0000	0.0000

For the result of the redundant fixed effect tests in the table 4.6, the p-values are significant at 1% under chi-square and F-statistic in the cross- section fixed effect. The p-value of period fixed effects is not significant at 10% under F-statistic but the p-value is significant at 5% under chi-square. The p-values are significant at 1% under

chi-square and F-statistic in the cross- section fixed effect and both types of fixed effect. The null hypothesis of redundant fixed effects can be rejected on a 5% level at the cross-section fixed effects, period Chi-square and the both types of fixed effects. Based on the results obtained from the redundant fixed effect test, the use of pooled OLS is not adequate. Therefore, the study further estimates fixed effect (FE) and random effect (RE) models and performs Hausman test (HT) to determine which estimators between FE and RE is appropriate.

The results obtained from fixed effect and random effect estimators are presented in Table 4.7 and Table 4.8 respectively. Following these estimations, the results of Hausman test are given in Table 4.9.

Table 4.7 *Results of Fixed Effect Estimator*

Variables	**Dependent Variable: Inward cross border merger and acquisition**			
	Fixed effect estimators			
	Coefficient		**t-statistics**	**P-value**
Constant	-7.002570	**	-2.162130	0.0322
ER	-0.534262	*	-1.831126	0.0691
GDP	0.429460	***	3.137539	0.0021
INF	0.011610		0.174163	0.8621
INT	0.014579		0.199353	0.8423
SPI	0.202418	*	1.899051	0.0595
Adjusted R-squared	0.8868			
F-statistic	77.81696			
Number of Observations	165			
Durbin-Watson Stat	1.477204			

Note: INCBMA =Inward cross border merger and acquisition; ER =Exchange rate; GDP=Gross Domestic Product; INF= Inflation, INT= interest rate and SPI= Stock Price Index. All variables are in natural logarithms. A superscript *, ** or *** indicates significance at the 10%, 5% or 1% confidence levels, respectively.

Table 4.8 *Results of Random Effect Estimator*

Variables	**Dependent Variable: Inward cross border merger and acquisition**			
	Random effect estimator			
	Coefficient		**t-statistics**	**P-value**
Constant	-2.445016		-1.499015	0.1359
ER	-0.160373		-1.294431	0.1974
GDP	0.141438	**	2.015992	0.0455
INF	-0.002175		-0.033004	0.9737
INT	-0.010798		-0.150467	0.8806
SPI	0.365993	***	4.740311	0.0000
Adjusted R-squared	0.293364			
F-statistic	14.61709			
Number of Observations	165			
Durbin-Watson Stat	1.319747			

Note: INCBMA =Inward cross border merger and acquisition; ER =Exchange rate; GDP=Gross Domestic Product; INF= Inflation, INT= interest rate and SPI= Stock Price Index. All variables are in natural logarithms. A superscript ** or *** indicates significance at the 5% or 1% confidence levels, respectively.

Table 4.9 *Results of Correlated Random effect-Hausman test*

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.7085	5	0.0077

From the results of Hausman test, the p-value of HT is significant at level of 1%, this suggests that the FE is the best estimator. After the FE is been chosen, then there is need to check for the problem of Heteroscedasticity by conducting Breusch-Pagan test.

Table 4.10 *Results of Breusch-Pagan test*

Null (no rand. effect)	Cross-section	Period	Both
Alternative	One-sided	One-sided	
Breusch-Pagan	581.8647	1.189958	583.0547
	(0.00)	(0.28)	(0.00)

The result of Breusch-Pagan test is significant at level of 5%. This means that the problem of heteroscedasticity exists in the variables of the FE model. Therefore, the FE estimator results may not be appropriate. Then, this study further estimates the model using robust least square regression. The results of the Robust Least Square are presented in Table 4.11. This study relies on the results obtained from the Robust Least Square and it focuses its interpretation on those results. From Table 4.11, there are four variables (exchange rate, GDP, inflation and interest rate) are significant at level of 5%.

Table 4.11 *Results Of Robust Least Square*

Variables	**Dependent Variable: Inward cross border merger and acquisition**			
	Robust Least Square			
	Coefficient		**t-statistics**	**P-value**
Constant	4.645285	***	6.453065	0.0000
ER	-0.213203	***	-5.526104	0.0000
GDP	0.069598	***	3.960336	0.0001
INF	-0.270284	**	-2.264416	0.0235
INT	-0.37326	***	-3.879821	0.0001
SPI	-0.132408		-1.381053	0.1673
Adjusted R-squared	0.252686			
Number of Observations	165			

Note: INCBMA =Inward cross border merger and acquisition; ER =Exchange rate; GDP=Gross Domestic Product; INF= Inflation, INT= interest rate and SPI= Stock Price Index. All variables are in natural logarithms. A superscript ** or *** indicates significance at the 5% or 1% confidence levels, respectively.

Also, the adjusted R-square value for this regression is about 25 percent. It explains the percent of contribution of all independent variable to dependent variables. It may indicate that is a medium low relationship between inward cross border M&A and the independent variables. The F-statistics value of this regression is significant and confirms the goodness-of-fits of models ($p<0.01$). In the term of the

sign of coefficient, there is a significant relationship between the inward cross border M&A and the independent variables.

The lower inflation rate in the home country is a strong determinant of the growth of the inward cross border M&A activity. As according to the result from Table 4.11, it shows that the inflation rate is negatively related to inward cross border M&A at the significance level of 5%. There is significant relationship between inward cross-border M&A and inflation rate is supported. The findings is consistent accordingly to Black (2000), the lower inflation rate in the home country is a strong determinant of the growth of the inward cross border M&A activity. Based on the capital budgeting model, the lower inflation rate will lead the initial cost of the targets firm become lower and then lower the cost of debt. The lower of the initial cost of inward cross border M&A can encourage higher net present value (NPV). It will force the flow of inward cross border M&A activity in a country higher.

GDP is typically used as a proxy for the level of real economic activity. From Table 4.11, the results show that there is significant positive relationship between GDP and inward cross border M&A. GDP has significant relationship with inward cross-border M&A. This result supports the privious findings by Douglas (2011), Resende (2008), Nakamura (2004) and Crook (1995) in which they found significant positive relationship between GDP and inward cross border M&A.

Higher GDP means that the country have a greater aggregate income and more market size, it will give the potential market to the firm for expand their inward cross border M&A activity. The higher GDP will cause the higher cash flow and then increase inward cross border M&A activities. Healy and Palepu (1993) argue that higher GDP may lead to higher levels of cash reserves in the hands of local firms that may eventually spend excess funds to acquire local firms to increase their size and

gain market power. In addition, the availability of cash reserves in local companies may be considered to lead to increased competition between local and foreign acquirers, leading to overvaluation of the target. In view of the market imperfections of products and services in global markets such as transaction costs, barriers to entry costs and “foreignness" liabilities, acquisitions may favour domestic acquisitions when involving local and foreign acquirers.

As from Table 4.11, the regression analyses indicate a significant negative relationship between the real interest rate and inward cross border M&A, at the 1% level. The significant relatioship between real interest rate and inward cross-border M&A is supported. This result is in line with with Tolentino (2010) and Agyenim, Ruthira and Moshfique (2011) who state that the negative relationship indicates that the lower real interest rate able to boost the inward cross border M&A.

The lower of the real interest rate in a home country means that reduce the initial cost for the inward cross border M&A and then the value of NPV become higher. It will lead to the firm more prefer to invest and increase the inward cross border M&A activity in a country. Melicher et al (1983) discuss the negative relationship between inward cross border M&A and interest rates. The lower interest rates reduce financing costs and encourage more mergers and acquisitions. Micheal and Ashfaqul (2003) also found that the lower real interest rate would increase the inward cross-border M&A activity.

For the exchange rate, there is a significant negative relationship between exchange rate and inward cross border M&A at the 5% level. . This result is similar to the previous researches by Weston (2001), Rad & Corhay (2000) and Renneboog & Goergen (2004), in which if the home currency depreciates in value relative to host currency, then firms from home country will find firms in the host country relatively

expensive leading to less acquisition of firms in the host country. Kiymaz (2004) found that the acquirer would benefit from a strong domestic currency during the transaction and a weaker domestic currency when dividends and cash flows are returned.

Based on the Table 4.11, SPI is insignificant negative relationship between SPI and inward cross border M&A. This result is similar to the previous research by McCann (2001), in which SPI is also found to be insignificantly related with inward cross border M&A.

CHAPTER FIVE

SUMMARY, CONCLUSION AND REOMMANDATION

5.0 Introduction

This chapter discusses about the overall summary of this study. First section illustrates about the summary of the study that includes the empirical findings of the results. Second section presents the limitation of the present study. The last section explains about the recommendations and suggestions for future research.

5.1 Summary of the Study

This chapter summarizes the key contribution of the present study and its empirical findings. The purpose of the present study is to provide the empirical evidence on the impact of the GDP, inflation, interest rate and exchange rate on inward cross border M&A in developing countries. To carry out this research, 11 developing countries over the period of 2001-2015 are examined. The selected countries are the most attractive among the developing countries. The empirical findings of the study suggested that GDP, inflation, interest rate and exchange rate have a significant relationship with inward cross border M&A. SPI is insignificant relationship with inward cross border M&A.

The hypothesis, H_1 regarding the significant relationship between inward cross border M&A and GDP is supported. GDP has significant relationship with inward cross-

border M&A. This result is similiar to the privious findings by Douglas (2011), Resende (2008), Nakamura (2004) and Crook (1995) which reported the significant positive relationships between GDP and inward cross border M&A. Higher GDP means that the country has a greater aggregate income and more market size. This will serve as a potential market to firms to expand their inward cross border M&A activity. The higher GDP will cause the higher cash flow and then increase inward cross border M&A activities.

The hypothesis, H_2 regarding the significant relationship between inward cross border M&A and inflation is supported. The negative relationship between inflation and inward cross border M&A suggests that the lower inflation rate in the home country is a strong determinant of the growth of the inward cross border M&A activity (Black, 2000). The lower inflation rate in the home country is a strong determinant of the growth of the inward cross border M&A activity. Based on the capital budgeting model, the lower inflation rate will make the initial cost of the target firm to become lower and then lower the cost of debt. The lower initial cost of inward cross border M&A activities can encourage higher net present value (NPV). It will force the flow of inward cross border M&A activity into a country to become higher.

The hypothesis, H_3 regarding the significant relationship between inward cross border M&A and real interest rate is supported. The results shows that the significant negative relationship indicates that the lower real interest rate is able to boost the inward cross border M&A (Tolentino, 2010 and Agyenim, 2010). The lower real interest rate in a home country means a reduction in the initial cost for the inward cross border M&A and then the value of NPV becomes higher. It will make the firm to prefer to invest more and increase the inward cross border M&A activity in a country.

The hypothesis, H_4 regarding the significant relationship between inward cross border M&A and exchange rate is supported. The significant negative relationship between exchange rate and inward cross border M&A is similar to the results of previous researches, in which if the home currency depreciates in value relative to host currency, then firms from home country will find firms in the host country relatively expensive leading to less acquisition of firms in the host country.

The hypothesis, H_5 regarding the significant relationship between inward cross border M&A and SPI is not supported. SPI has insignificant relationship with inward cross border M&A. This result is similar to the previous research by McCann (2001), in which SPI is also found to be insignificantly related with inward cross border M&A.

In conclusion, four hypotheses of this study are supported by the empirical results and one hypothesis is not supported. This study finds a positive relationship between inward cross border M&A and GDP while Inflation, interest rate and exchange rate have negative relationship with inward cross border M&A. On the other hand, SPI has insignificant relationship with inward cross border M&A.

5.2 Limitation of Study

The present study examined the relationship between inward cross border M&A and its explanatory variables (GDP, exchange rate, inflation, interest rate and SPI). There is one limitation pointed out from this study. The limitation of this study is that few studies have been conducted regarding the determinant of inward cross border M&A in developing countries. Therefore, few literature led to the difficultly of supporting the current findings with the previous findings in developing countries. In essence, inadequate previous results in these developing countries prevent the current study from making reasonable comparison in the analysis of the relationship between inward cross border M&A.

5.3 Recommendation and Suggestions for the Future Research

Based on the study, the recommendations are the multinational managers can refer to the results of this study when involved in the global strategic decision-making of inward cross border M&A. When the inflation, interest rate and exchange rate are higher, the multinational managers are not prefer involved in the inward cross border M&A activities. The multinational managers will make decision that involved in inward cross border M&A if the GDP is higher.

The conclusions drawn from the results of the research have given the new potential questions for the future research. It is suggested that the researchers replicate the study for more than 11 developing countries and comparing the results to the developed countries. Therefore comparisons can be made to examine the macroeconomic factors in the home countries will affect the inward cross border M&A in the developing countries and the developed countries.

For the future research, it would be interesting to investigate and test more explanatory variables. A great degree of empirical studies using different samples in different countries suggested that inward cross-border M&A determinants include firm level factors (Gugler, Mueller and Micheal, 2012), political environment (Alessandro, Borchert and Mattoo, 2015) and cultural differences (Kenneth, Daniele , and Fracassi, 2011).

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APPENDICES

DESCRIPTIVE STATISTICS INDICATORS FOR THE VARIABLES OF THE RESEARCH

	IN_CBMA01	IN_EX	IN_GDP	IN_INF	IN_INT	IN_SPI
Mean	3.360650	3.905387	25.16728	1.372131	1.711602	7.906841
Median	3.367645	3.535097	26.54937	1.412225	1.591465	7.548880
Maximum	5.852809	9.985991	30.01981	3.996782	4.077960	11.57381
Minimum	0.000000	0.203442	7.548796	-1.644536	-1.091775	4.910292
Std. Dev.	1.379785	3.204463	5.505203	0.847649	1.048911	1.504187
Skewness	-0.562474	0.731356	-2.586469	-0.302480	0.241441	0.619333
Kurtosis	3.065410	2.120610	8.261265	4.030439	3.054954	2.666998
Jarque-Bera	8.729784	20.02587	374.2764	9.815995	1.623835	11.31063
Probability	0.012716	0.000045	0.000000	0.007387	0.444006	0.003499
Sum	554.5073	644.3889	4152.602	226.4017	282.4144	1304.629
Sum Sq. Dev.	312.2243	1684.048	4970.390	117.8353	180.4353	371.0628
Observations	165	165	165	165	165	165

UNIT ROOT TEST

Null Hypothesis: Unit root (common unit root process)
Series: IN_CBMA01
Date: 05/18/17 Time: 12:10
Sample: 2001 2015
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 143
Cross-sections included: 11

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-2.19686	0.0140

** Probabilities are computed assuming asympotic normality

Null Hypothesis: Unit root (common unit root process)
Series: D(IN_CBMA01)
Date: 05/18/17 Time: 12:11
Sample: 2001 2015
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 132
Cross-sections included: 11

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.88350	0.0001

** Probabilities are computed assuming asympotic normality

Null Hypothesis: Unit root (common unit root process)
Series: IN_CBMA01
Date: 05/18/17 Time: 12:11
Sample: 2001 2015
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 143
Cross-sections included: 11

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-0.70466	0.2405

** Probabilities are computed assuming asympotic normality

Null Hypothesis: Unit root (common unit root process)
Series: D(IN_CBMA01)
Date: 05/18/17 Time: 12:12
Sample: 2001 2015
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Total (balanced) observations: 132
Cross-sections included: 11

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-3.70515	0.0001

** Probabilities are computed assuming asympotic normality

Null Hypothesis: Unit root (individual unit root process)
Series: IN_CBMA01
Date: 05/18/17 Time: 12:12
Sample: 2001 2015
Exogenous variables: Individual effects
User-specified lags: 1
Total (balanced) observations: 143
Cross-sections included: 11

Method	Statistic	Prob.**
Im, Pesaran and Shin W-stat	-0.94827	0.1715

** Probabilities are computed assuming asympotic normality

Null Hypothesis: Unit root (individual unit root process)
Series: D(IN_CBMA01)
Date: 05/18/17 Time: 12:12
Sample: 2001 2015
Exogenous variables: Individual effects
User-specified lags: 1
Total (balanced) observations: 132
Cross-sections included: 11

Method	Statisti	Prob.**

	c	
Im, Pesaran and Shin W-stat	-4.54392	0.0000

** Probabilities are computed assuming asympotic normality

Null Hypothesis: Unit root (individual unit root process)
Series: IN_CBMA01
Date: 05/18/17 Time: 12:13
Sample: 2001 2015
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Total (balanced) observations: 143
Cross-sections included: 11

Method	Statistic	Prob.**
Im, Pesaran and Shin W-stat	0.71443	0.7625

** Probabilities are computed assuming asympotic normality

Null Hypothesis: Unit root (individual unit root process)
Series: D(IN_CBMA01)
Date: 05/18/17 Time: 12:13
Sample: 2001 2015
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Total (balanced) observations: 132
Cross-sections included: 11

Method	Statistic	Prob.**
Im, Pesaran and Shin W-stat	-3.49478	0.0002

CORRELATION TEST

Covariance Analysis: Ordinary
Date: 05/24/17 Time: 17:11
Sample: 2001 2015
Included observations: 165

Correlation Probability	IN_CBMA01	IN_EX	IN_GDP	IN_INF	IN_INT	IN_SPI
IN_CBMA01	1.000000 -----					
IN_EX	-0.364389 0.0000	1.000000 -----				
IN_GDP	0.172665 0.0266	-0.015946 0.8389	1.000000 -----			
IN_INF	-0.173645 0.0257	0.105172 0.1788	0.215411 0.0055	1.000000 -----		
IN_INT	-0.182876 0.0187	-0.367669 0.0000	0.140667 0.0715	0.112814 0.1491	1.000000 -----	
IN_SPI	0.137821 0.0775	-0.603138 0.0000	0.355907 0.0000	0.332903 0.0000	0.496448 0.0000	1.000000 -----

RELATIONSHIP BETWEEN INWARD CROSS BORDER M&A, INTEREST RATE, INFLATION, EXCHANGE RATE AND GDP

Pooled OLS

Dependent Variable: IN_CBMA01
Method: Panel Least Squares
Date: 05/24/17 Time: 16:00
Sample: 2001 2015
Periods included: 11
Cross-sections included: 11
Total panel (balanced) observations: 165

Variable	Coefficien...	Std. Error	t-Statistic	Prob.
C	3.926056	0.749268	5.239854	0.0000
IN_EX	-0.216191	0.040157	-5.383602	0.0000
IN_GDP	0.063676	0.018292	3.481093	0.0006
IN_INF	-0.201787	0.124238	-1.624196	0.1063
IN_INT	-0.493875	0.100136	-4.932040	0.0000
IN_SPI	-0.025477	0.099792	-0.255298	0.7988

R-squared	0.313181	Mean dependent var	3.360650
Adjusted R-squared	0.291583	S.D. dependent var	1.379785
S.E. of regression	1.161331	Akaike info criterion	3.172696
Sum squared resid	214.4416	Schwarz criterion	3.285640
Log likelihood	-255.7475	Hannan-Quinn criter.	3.218544
F-statistic	14.50039	Durbin-Watson stat	0.322579
Prob(F-statistic)	0.000000		

Fixed effect estimators

Dependent Variable: IN_CBMA01
Method: Panel Least Squares
Date: 05/24/17 Time: 16:52
Sample: 2001 2015
Periods included: 15
Cross-sections included: 11
Total panel (balanced) observations: 165

Variable	Coefficien...	Std. Error	t-Statistic	Prob.
C	-7.002570	3.238737	-2.162130	0.0322
IN_EX	-0.534262	0.291767	-1.831126	0.0691
IN_GDP	0.429460	0.136878	3.137539	0.0021
IN_INF	0.011610	0.066660	0.174163	0.8620
IN_INT	0.014579	0.073131	0.199353	0.8423
IN_SPI	0.202418	0.106589	1.899051	0.0595

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.886800	Mean dependent var	3.360650
Adjusted R-squared	0.875404	S.D. dependent var	1.379785
S.E. of regression	0.487039	Akaike info criterion	1.490994
Sum squared resid	35.34379	Schwarz criterion	1.792176
Log likelihood	-107.0070	Hannan-Quinn criter.	1.613254
F-statistic	77.81696	Durbin-Watson stat	1.477204
Prob(F-statistic)	0.000000		

Redundant Fixed effects Tests

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	71.814725	(10,135)	0.0000
Cross-section Chi-square	304.203467	10	0.0000
Period F	1.492293	(14,135)	0.1219
Period Chi-square	23.741734	14	0.0492
Cross-Section/Period F	33.785218	(24,135)	0.0000
Cross-Section/Period Chi-square	321.222691	24	0.0000

Cross-section fixed effects test equation:
Dependent Variable: IN_CBMA01
Method: Panel Least Squares
Date: 05/28/17 Time: 18:49
Sample: 2001 2015
Periods included: 15
Cross-sections included: 11
Total panel (balanced) observations: 165

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.904269	0.929865	6.349602	0.0000
IN_EX	-0.283288	0.044837	-6.318245	0.0000
IN_GDP	0.077467	0.018610	4.162629	0.0001
IN_INF	-0.081435	0.137273	-0.593232	0.5540
IN_INT	-0.252350	0.122311	-2.063188	0.0409
IN_SPI	-0.359592	0.136259	-2.639034	0.0092

Effects Specification

Period fixed (dummy variables)

R-squared	0.380493	Mean dependent var	3.360650
Adjusted R-squared	0.299316	S.D. dependent var	1.379785
S.E. of regression	1.154975	Akaike info criterion	3.239247
Sum squared resid	193.4252	Schwarz criterion	3.615725
Log likelihood	-247.2378	Hannan-Quinn criter.	3.392072
F-statistic	4.687211	Durbin-Watson stat	0.292070
Prob(F-statistic)	0.000000		

Period fixed effects test equation:
Dependent Variable: IN_CBMA01
Method: Panel Least Squares
Date: 05/28/17 Time: 18:49
Sample: 2001 2015
Periods included: 15
Cross-sections included: 11
Total panel (balanced) observations: 165

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.002570	3.238737	-2.162130	0.0322
IN_EX	-0.534262	0.291767	-1.831126	0.0691
IN_GDP	0.429460	0.136878	3.137539	0.0021
IN_INF	0.011610	0.066660	0.174163	0.8620
IN_INT	0.014579	0.073131	0.199353	0.8423
IN_SPI	0.202418	0.106589	1.899051	0.0595

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.886800	Mean dependent var	3.360650
Adjusted R-squared	0.875404	S.D. dependent var	1.379785
S.E. of regression	0.487039	Akaike info criterion	1.490994
Sum squared resid	35.34379	Schwarz criterion	1.792176
Log likelihood	-107.0070	Hannan-Quinn criter.	1.613254
F-statistic	77.81696	Durbin-Watson stat	1.477204
Prob(F-statistic)	0.000000		

Cross-section and period fixed effects test equation:
Dependent Variable: IN_CBMA01
Method: Panel Least Squares
Date: 05/28/17 Time: 18:49
Sample: 2001 2015
Periods included: 15
Cross-sections included: 11
Total panel (balanced) observations: 165

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.926056	0.749268	5.239854	0.0000
IN_EX	-0.216191	0.040157	-5.383602	0.0000
IN_GDP	0.063676	0.018292	3.481093	0.0006
IN_INF	-0.201787	0.124238	-1.624196	0.1063
IN_INT	-0.493875	0.100136	-4.932040	0.0000
IN_SPI	-0.025477	0.099792	-0.255298	0.7988

R-squared	0.313181	Mean dependent var	3.360650
Adjusted R-squared	0.291583	S.D. dependent var	1.379785
S.E. of regression	1.161331	Akaike info criterion	3.172696
Sum squared resid	214.4416	Schwarz criterion	3.285640
Log likelihood	-255.7475	Hannan-Quinn criter.	3.218544
F-statistic	14.50039	Durbin-Watson stat	0.322579
Prob(F-statistic)	0.000000		

Random effect estimator

Dependent Variable: lN_CBMA01
Method: Panel EGLS (Cross-section random effects)
Date: 05/24/17 Time: 16:54
Sample: 2001 2015
Periods included: 15
Cross-sections included: 11
Total panel (balanced) observations: 165
Swamy and Arora estimator of component variances

Variable	Coefficien...	Std. Error	t-Statistic	Prob.
C	-2.445016	1.631082	-1.499015	0.1359
lN_EX	-0.160373	0.123894	-1.294431	0.1974
lN_GDP	0.141438	0.070158	2.015992	0.0455
lN_INF	-0.002175	0.065891	-0.033004	0.9737
lN_INT	-0.010798	0.071762	-0.150467	0.8806
lN_SPI	0.365993	0.077209	4.740311	0.0000

Effects Specification	S.D.	Rho
Cross-section random	1.410496	0.8935
Idiosyncratic random	0.487039	0.1065

Weighted Statistics

R-squared	0.314907	Mean dependent var	0.298435
Adjusted R-squared	0.293364	S.D. dependent var	0.598575
S.E. of regression	0.503172	Sum squared resid	40.25599
F-statistic	14.61709	Durbin-Watson stat	1.319747
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	-0.375545	Mean dependent var	3.360650
Sum squared resid	429.4787	Durbin-Watson stat	0.123703

Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.708542	5	0.0077

Breusch-Pagan Lagrange multiplier Test (Heteroscedasticity Test)

Lagrange multiplier (LM) test for panel data
Date: 05/24/17 Time: 16:05
Sample: 2001 2015
Total panel observations: 165
Probability in ()

Null (no rand. effect) Alternative	Cross-section One-sided	Period One-sided	Both
Breusch-Pagan	581.8647 (0.0000)	1.189958 (0.2753)	583.0547 (0.0000)
Honda	24.12187 (0.0000)	-1.090852 (0.8623)	16.28539 (0.0000)
King-Wu	24.12187 (0.0000)	-1.090852 (0.8623)	17.71924 (0.0000)
GHM	-- --	-- --	581.8647 (0.0000)

Robust Least Square

Dependent Variable: lN_CBMA01
Method: Robust Least Squares
Date: 05/18/17 Time: 15:10
Sample: 2001 2015
Included observations: 165
Method: M-estimation
M settings: weight=Bisquare, tuning=4.685, scale=MAD (median centered)
Huber Type I Standard Errors & Covariance

Variable	Coefficien...	Std. Error	z-Statistic	Prob.
C	4.645285	0.719857	6.453065	0.0000
lN_EX	-0.213203	0.038581	-5.526104	0.0000
lN_GDP	0.069598	0.017574	3.960336	0.0001
lN_INF	-0.270284	0.119362	-2.264416	0.0235
lN_INT	-0.373260	0.096205	-3.879821	0.0001
lN_SPI	-0.132408	0.095875	-1.381053	0.1673

Robust Statistics

R-squared	0.275470	Adjusted R-squared	0.252686
Rw-squared	0.391843	Adjust Rw-squared	0.391843
Akaike info criterion	194.4646	Schwarz criterion	214.4632
Deviance	168.7025	Scale	0.957978
Rn-squared statistic	70.23723	Prob(Rn-squared stat....	0.000000

Non-robust Statistics

Mean dependent var	3.360650	S.D. dependent var	1.379785
S.E. of regression	1.183296	Sum squared resid	222.6300