

DETERMINANTS INFLUENCING FOREIGN
DIRECT INVESTMENT DECISION IN MALAYSIA

CHEONG CHIA SIN
GEE YING WEI
JOCELYN OOI XIN YING
LEE JO YIN
LIM JIAN ZHONG

BACHELOR OF BUSINESS ADMINISTRATION
(HONS) BANKING AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE
DEPARTMENT OF FINANCE

AUGUST 2017

DETERMINANTS INFLUENCING FOREIGN DIRECT
INVESTMENT DECISION IN MALAYSIA

BY

CHEONG CHIA SIN
GEE YING WEI
JOCELYN OOI XIN YING
LEE JO YIN
LIM JIAN ZHONG

A research project submitted in partial fulfillment of the
requirement for the degree of

BACHELOR OF BUSINESS ADMINISTRATION
(HONS) BANKING AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE
DEPARTMENT OF FINANCE

AUGUST 2017

Copyright @ 2017

ALL RIGHTS RESERVED. No part of this paper may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, graphic, electronic, mechanical, photocopying, recording, scanning, or otherwise, without the prior consent of the authors.

DECLARATION

We hereby declare that:

- (1) This undergraduate research project is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.
- (2) No portion of this research project has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
- (3) Equal contribution has been made by each group member in completing the research project.
- (4) The word count of this research report is 13700 words.

Name of Student:	Student ID:	Signature:
1. Cheong Chia Sin	14ABB06632	_____
2. Gee Ying Wei	14ABB06361	_____
3. Jocelyn Ooi Xin Ying	14ABB06936	_____
4. Lee Jo Yin	13ABB06162	_____
5. Lim Jian Zhong	15ABB00543	_____

Date: _____

ACKNOWLEDGEMENT

Without the assistance, cooperation and guidance of several parties, this research project would not be achievable. We would like to take this opportunity to thank everyone who have helped and guided us in completing this research project.

Firstly, we would like to express our heartfelt gratitude and appreciation to our supervisor, Mr. Ahmad Harith who had guided us throughout the duration of this study. We appreciate the valuable time, guidance and advices he has given us for the completion of this research project.

Furthermore, we would also like to thank the lecturers and tutors of UTAR who have guided us directly and indirectly with new insights and ideas on the path of completing this study. Besides, we deeply appreciate the moral support, understanding and endless love in which our family have given unconditionally throughout the process.

Lastly, the cooperation and support received from all the members who contributed to this research was vital for the success of this project. The ideas, suggestions, and perspective given greatly enhanced this research project. Once again, we are in grateful and in appreciation of all the assistance contributed for our study.

TABLE OF CONTENTS

CHAPTER 1: RESEARCH OVERVIEW	
1.0 Introduction.....	1
1.1 Research Background	3
1.2 Problem Statement	4
1.3 Research Objectives.....	7
1.3.1 General Objective	7
1.3.2 Specific Objectives	7
1.4 Research Questions.....	7
1.5 Hypotheses of the Study	8
1.6 Significance of the Study	8
1.7 Conclusion	9
1.8 Chapter Layout.....	10
CHAPTER 2: LITERATURE REVIEW	
2.0 Introduction.....	11
2.1 Review of the Literature	11
2.1.1 Foreign Direct Investment	11
2.1.2 Economic Growth.....	12
2.1.3 Market Size	14
2.1.4 Inflation rate.....	15
2.1.5 Exchange rate.....	16
2.1.6 Trade Openness.....	17
2.2 Review of Relevant Theoretical Models.....	19
2.3 Proposed Theoretical / Conceptual Framework.....	20
2.4 Hypothesis Development	22
2.5 Conclusion	23
CHAPTER 3: METHODOLOGY	
3.0 Introduction.....	24
3.1 Research Design.....	24
3.2 Data Collection Method.....	25
3.3 Data Processing.....	25
3.4 Data Analysis	26
3.4.1 Descriptive Analysis	26
3.4.2 Correlation Analysis	27
3.4.3 E-views	27
3.4.4 Multiple Linear Regressions	28
3.4.5 T-test Statistic	29
3.4.6 F-test Statistic.....	29
3.4.7 Diagnostic test.....	30
3.4.7.1 Model Specification and Normality test	30
3.4.7.2 Multicollinearity	31
3.4.7.3 Heteroscedasticity	32
3.4.7.4 Autocorrelation	32
3.5 Conclusion	33

CHAPTER 4: DATA ANALYSIS	
4.0 Introduction.....	34
4.1 Descriptive Analysis	34
4.2 Correlation Analysis	37
4.3 Empirical Result of Multiple Linear Regressions Model	38
4.3.1 T-Statistic Test.....	39
4.3.2 F-Statistic Test	42
4.3.3 Model Specification Test.....	43
4.3.4 Normality Test	44
4.3.5 Multicollinearity	45
4.3.6 Heteroscedasticity	47
4.3.7 Autocorrelation	48
4.4 Problem Solving.....	49
4.4.2 Interpretation of Coefficients.....	50
4.4.2.1 Economic Growth	50
4.4.3.2 Market Size	50
4.4.3.3 Inflation rate.....	51
4.4.3.4 Exchange rate.....	51
4.4.3.5 Trade Openness.....	51
4.4.3.6 LAG Malaysia Foreign Direct Investment.....	51
4.4.4 T-Statistic test for Model 1	52
4.4.5 F-Statistic Test	53
4.5 Conclusion	54
 CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS	
5.0 Introduction.....	55
5.1 Summary of Statistical Analyses	56
5.2 Discussion on Major Findings	59
5.2.1 Economic Growth	59
5.2.2 Market Size	60
5.2.3 Inflation Rate	61
5.2.4 Exchange Rate	62
5.2.5 Trade Openness.....	62
5.3 Implications of Study.....	63
5.4 Limitations of Study	65
5.5 Recommendations for Future Research.....	66
5.6 Conclusion	66
References.....	68
Appendices.....	79

LIST OF FIGURES

	Page
Figure 1.1: Total FDI inflows in Malaysia (% of GDP): 1970 – 2015.....	3
Figure 2.1: Theoretical Model.....	19
Figure 2.2: The Determinants of Foreign Direct Investment in Malaysia	20

LIST OF TABLES

	Page
Table 4.1: Descriptive analysis.....	34
Table 4.2: Correlation Analysis.....	37
Table 4.3: MFDI is explained by EG, INMS, INF, EX, & TO (Ordinary Least Squares).....	38
Table 4.3.1: Ramsey RESET Test	43
Table 4.3.2: Jarque-Bera Normality Test.....	44
Table 4.3.3: Variance Inflation Factor (VIF) Analysis.....	46
Table 4.3.4: VIF value indication.....	46
Table 4.3.5: Heteroskedasticity Test: Breusch-Pagan-Godfrey.....	47
Table 4.3.6: Breusch-Godfrey Serial Correlation LM Test.....	48
Table 4.4: MFDI is explained by EG, INMS, INF, EX, TO & LAGMFDI (Model 1).....	49
Table 4.4.1: Results of T-statistic for Model 1.....	52
Table 5.1: Summary of diagnostic checking in OLS model.....	56
Table 5.2: Summary of statistical analysis in OLS model.....	56
Table 5.3: Summary of diagnostic checking in Model 1.....	57
Table 5.4: Summary of statistical analysis in Model 1.....	58

LIST OF ABBREVIATIONS

ADF	Augmented-Dickey Fuller
ASEAN	Association of Southeast Asian Nations
ECM	Error Correction Model
EG	Economic Growth
E-views	Electronic Views
EX	Exchange Rate
FD	Financial Development
FDI	Foreign Direct Investment
FE	Fixed Effects
FTA	Free Trade Agreements
GDP	Gross Domestic Product
GNP	Gross National Product
GRO	Annual Growth Rate
GUI	Graphical User Interface
INF	Inflation Rate
INF	Infrastructure Development
JB	Jarque-Bera
MFDI	FDI Inflows in Malaysia
MNCs	Multinational Companies

MNE	Multinational Enterprise
MS	Marker Size
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Square
OPE	Trade Openness
OREER	Official Real Exchange Rate
RE	Random Effects
RER	Real Exchange Rate
RESET	Regression Equation Specification Error Test
SAARC	South Asian Association for Regional Cooperation
SACU	Southern Africa Customs Union
TAX	Corporate Tax Rate
TO	Trade Openness
TOL	Tolerance
UNC	Macroeconomic Volatility
VAR	Vector Auto Regression
VIF	Variance Inflation Factor

LIST OF APPENDIX

	Page
Appendix 1: Empirical Result of Multiple Linear Regression Model.....	79
Appendix 2: Statistical Result for VIF Analysis.....	80
Appendix 2.1: Economic Growth.....	80
Appendix 2.2: Market Size.....	81
Appendix 2.3: Inflation Rate.....	81
Appendix 2.4: Exchange Rate.....	82
Appendix 2.5: Trade Openness.....	82
Appendix 3: Model Specification Bias (Ramsey RESET Test).....	83
Appendix 4: Normality Test (Jarque-Bera Test).....	84
Appendix 5: Heteroscedasticity (Breusch-Pagan-Godfrey Test).....	85
Appendix 6: Autocorrelation (Breusch-Godfrey Serial Correlation LM Test).....	86
Appendix 7: Empirical Result of Multiple Linear Regression Model:	
Model 1.....	87
Appendix 8: Model Specification Bias (Ramsey RESET Test):	
Model 1.....	88
Appendix 9: Normality Test (Jarque-Bera Test): Model 1.....	89
Appendix 10: Heteroscedasticity (Breusch-Pagan-Godfrey Test):	
Model 1.....	90
Appendix 11: Autocorrelation (Breusch-Godfrey Serial Correlation LM Test): Model 1.....	91

PREFACE

This research paper is submitted as a part of the requirement to fulfill for the Bachelor of Business Administration (Hons) Banking and Finance course. The title chosen for this research project is “Determinants influencing foreign direct investment decision in Malaysia”. It revolves around the determinants of the foreign direct investment inflows in Malaysia.

Foreign Direct Investment (FDI) is one of the key drivers in speeding up the development and economic growth in Malaysia. Sound macroeconomic management, presence of a well-functioning financial system and sustained economic growth has made Malaysia an attractive country for FDI. Moreover, FDI plays a crucial role in Malaysia economy as it generates economic growth by increasing capital formation through the expansion of production capacity.

It is reported that the charm of Malaysia in attracting FDI had declined eventually from 1992 until 2001. It was then increased from 2002 to 2006 but dropped significantly from 2007 to 2009. Surprisingly, FDI inflow in Malaysia increased dramatically in 2010. The high volatility of FDI inflows to Malaysia has drawn attention to the further study of the determinants of FDI inflow in Malaysia.

ABSTRACT

Foreign Direct Investment (FDI) plays a crucial role in speeding up the development and economic growth of a country. In particular, developing countries rely heavily on FDI to promote their economy as they face capital shortage for their development process. FDI not only brings in capitals and technology, but also skills into developing countries. And these ended up helping the countries to grow faster by satisfying the country's needs.

The strong growth performances experienced by Malaysia economy greatly depends on the FDI. FDI generates economic growth by increasing capital formation through the expansion of production capacity, promotion of export growth and creation of employment in Malaysia. FDI inflows of Malaysia started fluctuating from 1996 to 2010 and this high volatility of Malaysia FDI inflows drew the researchers' attention to examine the factors affecting FDI inflows in Malaysia by using the annual data from year 1970-2015. Multiple linear regressions model is applied to study the relationship between explanatory variables (economic growth, market size, inflation rate, exchange rate and trade openness) and explained variable (Malaysia FDI inflow).

Empirical results show that economic growth, inflation rate, exchange rate, and trade openness are significant in determining MFDI. Conversely, market size is insignificant in determining MFDI. Nevertheless, there is autocorrelation in OLS model. In order to remove autocorrelation, the researchers add one period lag of dependent variable, LAGMFDI. In the new model, the market size, exchange rate and trade openness have shown to be insignificant between MFDI. Other explanatory variables such as economic growth, inflation rate and lagged Malaysia foreign direct investment have respectively shown to be significant to MFDI.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Foreign direct investment (FDI) mean as a direct investment of a company or individual in one country of expanding their business in another country. FDI will increase the development and productivity of host country (Antwi, Mills & Zhao, 2013). The FDI is essential components that affect economic growth of a country. Awan, Khan and Zaman (2011) stated that FDI brings in needed capital, managerial skill, technology, employment and export.

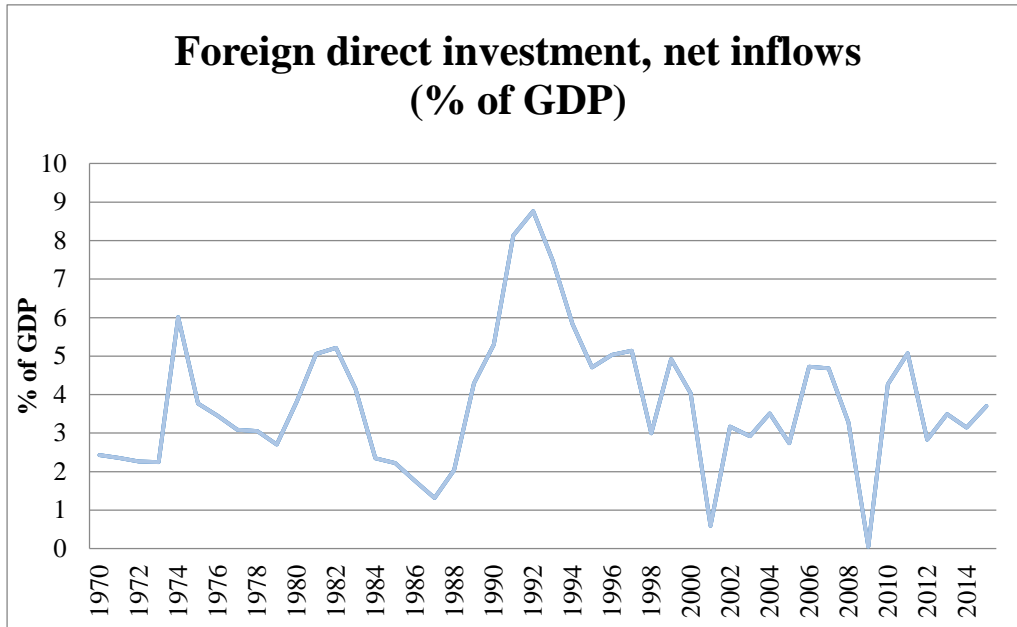
FDI brings benefit to both developing and developed countries. The developing country faces the problem of shortage capital. They need capital in development process. On the other hand, the investor in developed country have surplus of capital, they seek high return for their capital. The investor will receive dividend as the compensated of investment. So that, through FDI both parties will get benefit (Aqeel & Nishat, 2004). FDI provide managerial skill, training to employee in order to improve the management capacity of local firm (Emmanuel, 2014). Through interaction of two cross border companies, it leads to effective organisational skills and enhances management (Malik & Malik, 2013). According to Aga (2014), when foreign firm expands their business in host country, they will bring and introduce new technology. It will also reduce unemployment rate due to economic growth increase job opportunity (Edwin, 2014).When enhancing of economic growth, the employment will increase. Besides, it can promote export growth. The firms can sell their goods to host country's free trade partner in order to widen their market size (Pondicherry & Tan, 2017). FDI also act as an agent of transformation.

Demirhan and Masca (2008) describe four type of FDI; those are market seeking, resources seeking, efficiency seeking and strategic asset-seeking. Market seeking more prefer on serve regional and local markets. It also called horizontal FDI. It is the reproduction of the production facilities of the host country. It mainly focuses on market size and purchasing power. The purchasing power of host country becomes an important factor that affect the decision of investors (Tülüce & Doğan, 2014). Second type is resources seeking. The key determined resources seeking FDI is abundance and cost of natural resources (Tülüce & Doğan, 2014). This type of FDI occurs when the firms seeking resources in abroad due to scarce resources in home country. The lower cost of production is such a factor that invests in host country. Huge amount of resources such as oil and nature gas become an attraction to investor.

Furthermore, efficiency seeking takes place when firm gain from geographical activity in case of economies of scale and economies of scope. Tülüce and Doğan (2014) point out that physical infrastructure such as ports, roads, telecom and etc. become key determinant in efficiency seeking. Quality of suppliers also important for this type of investor, due to it will indirectly affect the efficiency of operation. The last type of FDI called strategic asset-seeking. It key determinants of this type of FDI are presence of firm-specific asset. The asset of firm also will affect the selection of investor. Easy to achieve cross-border mergers and acquisitions will increase FDI. Besides, efficiency and transparency of financial markets also such a factor that affecting decision of investor (Tülüce & Doğan, 2014).

1.1 Research Background

Figure 1.1: Total FDI inflows in Malaysia (% of GDP): 1970 – 2015



Source: The World Bank

FDI is very important in enhancing and developing of Malaysian economy. Malaysian act as an attractive country for FDI because sound management, working well in financial system, stable political situation and continued economic growth. Although Malaysian become popular selection of FDI in past, significant fall in FDI flows and losing its competitiveness to other Asian countries such as Singapore, China and Thailand in recent year.

According to Ang (2008), in early 1970s, government introduction a policy of Investment Incentives Act in 1968 and establish foreign trade zone. 1980 open policy by provision of export incentives has attracted a huge amount of FDI inflows (Karim, Zaidi, Ismail & Karim, 2012). The inflow of FDI in 1996 was US\$7,297 million is increased dramatically compare with early 1970s. Early of 1970s the inflow of FDI only US\$94 million and in mid-1980 coincidence of the foreign investment regime made the FDI increase in sharp. The total FDI inflow

of Malaysian is 25% into ASEAN countries. Malaysian is at second ranking of most attractive country for FDI after the Singapore.

In 1997 occurs financial crisis, it made an economic recession. The inflow of FDI dropped to US\$2,714 million in 1998. Besides, the raising wages of Japan, South Korea, United States and Taiwan lead to investor move firm to other low-cost countries. Low cost of production made Malaysian becomes popular selection of FDI. In 2003 the FDI inflows was US\$8,403 million, and Malaysia continue as a favourite location of foreign investor make investment.

1.2 Problem Statement

There is huge literature indicating the positive nexus among FDI and economic growth of a country. Malaysia FDI activities may be facilitated by many different factors. From a policy point of view, it suggests that some factors will influencing the Foreign Direct Investment of Malaysia, for example political risk, cost and production and other factor will affect FDI. Hence, in order to analyse whether there are others variable that influence FDI in Malaysia, we are using economic growth, market size, inflation rate, exchange rate and trade openness. In order to examine the factors that may influence FDI in Malaysia, researcher has included those variables in these projects.

A briefly explanation about the independent variables is required in this study to have a good understanding.

Inflation rate is one of the determinants of FDI inflow. The inflation rate refers to the prices of the goods and services increasing instantly and this situation may causes unstable in the economy. When inflation happens, the purchasing power of the investor on their needs may be high as they need more money for their living expenses which is getting higher and they would not involve in contributing the

FDI since they will not use their extra money to do any other investment. During the inflation, the demands of goods and services also may drop. This is because the prices that used to purchase the goods are increasing as compared to before such as RM1 can buy 1 packet of candy and it rises to RM10 to buy the same quantity of the candy. Eventually, the decrease in the inflation rate represented the high stability of the economic condition, vice versa. If there is a low inflation rate in the economic it may lead the investor use their pocket money to contribute to the FDI because it increases their confidence towards the FDI due to the stability of the economic. Low inflation has highly attracting investor. Thus, the nexus among inflation rate and FDI was negative (Demirhan & Masca, 2008).

Besides, the factor that may influence the FDI is exchange rate. There are 3 hypotheses of exchange rate movement on FDI. According to Takagi and Shi (2011), the research project only focused on first and second of the hypotheses. The first hypothesis is an increase in the FDI inflow when depreciate in currency of host country. Second, decrease in FDI inflow when the volatility of the exchange rate is greater while third is financial crisis may have an effect on the exchange rate. The researcher was discussed this three movement via the channel of volatility, exchange rate levels and expectation. The borrowers faced a premium for external borrowing due to imperfect in the assumption of capital market that have an impact to the changes in exchange rate. It reflects that, increase in FDI inflows when depreciate in the currency of the host country due to the foreign investor relative wealth will go up and the country currency cost of input will drop that encourage the investor to finance more. Besides, assumption of good market is imperfect also have been implied. Therefore, by owning an asset in host country, the changes in exchange rate will affect the relative return due to the investors does not have equal access to all markets (Takagi & Shi, 2011). Investor does not prefer high value of the currency. When there is a depreciate in the value of currency will make the foreign investor relative wealth position rise and at the same time the relative cost of capital will drop (Ang, 2008).

In addition, the researcher included market size as explanatory variable in the study. According to Jordaan (2004), foreign direct investment will proceed to countries with higher purchasing power and extending market, where the firms can potentially receive a greater return on their capital and by implication gain higher revenue from their investments. The major objective multinational enterprises extend their business to overseas because when they extend their business to overseas as locals, the business can except from import duties. While market size is small represents buying power as well as limit the household demand. When the market size is small, which mean that the foreign investors only have fewer chances their business this is because when the market size is small, the market is offer less resources and developing economics scale.

Moreover, the firm can get the benefits of economic of scale by produce more quantity at lower price. Market size with small market forbids the company to own this benefits, which is no rational for company to generate exceed the demand from market. Where amount of goods generated was fewer, however fixed cost was raising. Fixed cost such as rental and wages are remains unchanged to the quantity of goods generate. Therefore, lesser quantity of generate, the average cost of goods become costly. The company are difficult to gain greater revenue and improve the company's ability through decreasing the asking price. In short, the country with small market size is not suitable for foreign investors to invest.

Last but not least, the researcher also included trade openness as explanatory variable in the study. Trade openness also known as trade freeing, where the countries open their market to enable international trade. Country that restricted on trade openness will force the trade barriers on import goods, when the country restricted on trade openness the foreign investor enable to do the investment in the particular nation. Lower trade cost attracting the horizontal FDI, thus, high trade barrier bring company to deal in horizontal foreign direct investment to change export with productions overseas by foreign subsidiary. Export-oriented company imports goods when the goods are not available in domestic nation and further process then export for another nation to trading. When imported goods have high

tariff barriers, the expenses of generating the product would rise and the quantity of import will fall. Productivity and the profitability of the firm would decrease. In the other hand, vertical foreign direct investment able to distinguish by individual subsidiary specialize in varying level of generate products and semi products, because of that export to another subsidiary for further process (Aqeel & Nishat, 2004). Through the segregate production process, it allows firms to get the different cost advantages at different nations.

1.3 Research Objectives

1.3.1 General Objective

This study's general objective is to determinants influencing of MFDI.

1.3.2 Specific Objectives

- i. To study the impact of explanatory variables toward the inflows of MFDI
- ii. To determine the nexus among the influential factors and the decision of MFDI inflows.

1.4 Research Questions

- i. Is there any significant nexus among MFDI inflows and at least one of the explanatory variables in Malaysia?
- ii. Is there any significant nexus among economic growth and MFDI inflows?
- iii. Is there any significant nexus among market size and MFDI inflows?
- iv. Is there any significant nexus among inflation rate and MFDI inflows?

- v. Is there any significant nexus among exchange rate and MFDI inflows?
- vi. Is there any significant nexus among trade openness and MFDI inflows?

1.5 Hypotheses of the Study

H₀: There is no nexus among all explanatory variables and MFDI inflows.

H₁: At least one explanatory variable has nexus with MFDI inflows.

H₀: There is no nexus among economic growth and MFDI inflows.

H₁: There is nexus among economic growth and MFDI inflows.

H₀: There is no nexus among market size and MFDI inflows.

H₁: There is nexus among market size and MFDI inflows.

H₀: There is no nexus among inflation rate and MFDI inflows.

H₁: There is nexus among inflation rate and MFDI inflows.

H₀: There is no nexus among exchange rate and MFDI inflows.

H₁: There is nexus among exchange rate and MFDI inflows.

H₀: There is no nexus among trade openness and MFDI inflows.

H₁: There is nexus among trade openness and MFDI inflows.

1.6 Significance of the Study

Although in previously there have many researcher study about the determinant of FDI in Malaysia, determinant of FDI still is famous topic between the researchers. In this study, this paper intend to investigate the nexus among explained variable and explanatory variables. The objective of the researcher is to evaluate the

significant nexus among FDI inflow and other explanatory variables. The researcher have included economic growth, market size, inflation rate, exchange rate and trade openness as explanatory variables.

Moreover, this research will bring contribution to policy makers or government in Malaysia, so that the policy makers or government in Malaysia will know about which variables are significant influence foreign direct investment in Malaysia. Besides, if there is any variables are found indifferent, the policy makers in Malaysia will not allocate the capital resources to the variable that found insignificantly affect FDI in Malaysia, this will help the policy makers in Malaysia to avoid wastage of capital resources. The policy makers can use that surplus to allocate into the variables that significant affect FDI in Malaysia, as to increase the inflow of FDI in Malaysia. When increase the inflow of FDI in Malaysia, it will lead to reduce in unemployment rate and living standards of Malaysians will improve. In short, the future foreign investors who interested to make the investment in Malaysia can use this research as the reference in other to prevent wastage.

1.7 Conclusion

FDI is introduced and discussed as the dependent variable of this research. This research studies on seven determinants of FDI, which are, economic growth, inflation rate, exchange rate, market size and trade openness. Researchers also determine the objectives in order to understand the determinants of Malaysian FDI inflow so as to improve its future performance. Nevertheless, researchers provide the policymakers with a better understanding of the factors that affect FDI in expectation that they may develop appropriate and effective policies in future time. Moreover, researchers will further discuss the literature reviews and theoretical model in next chapter.

1.8 Chapter Layout

This research paper consists of five chapters. First chapter provides a basis for the next by presenting an overview of whole research paper which introduces about topic, background, problem statement, research objectives, research questions, hypotheses and the significance of this study. The second chapter explains further the literature review. Researchers give interpretations regarding of the variables based on their comprehension on the past researches. Next, third chapter elaborates methodologies and data collection method which are going to be undertaken for this research paper. Preparation of work is mainly discussed before researchers proceed to data analysis. Chapter four clarifies the pattern of results by using the data and methods which have prescribed in the previous chapter. Based on the results given, researchers will analyse the results inherent with research questions as well as hypotheses. Chapter five is inclusive of major findings and discussion, implications as well as recommendations for the future study purposes.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

Previous study have been examined some factors related to Foreign Direct Investment (FDI) that make our research easier to proposed a new framework. In this chapter, we are going to discuss more details on the determinants that affecting the MFDI. To determine the nexus among the influential factor and decision of MFDI, in this project researcher have included economic growth, market size, inflation rate, exchange rate and trade openness.

2.1 Review of the Literature

2.1.1 Foreign Direct Investment

Foreign Direct Investment (FDI) is an investment that aims to sustain a relationship in long-run, obtains a long-term interest (profits) and make sure a resident entity in one economy in an enterprise in another economy under control, as clarified by United Nations Conference on Trade and Development (UNCTAD). FDI also brings a big influence in its management, as supported by Moffett, Stonehill, and Eitheman (2009). 10% holding of an equity capital stake or more of the ordinary shares grants the investors rights of management and voting is generally considered as a threshold for FDI. However, the ownership level less than 10% is not classified as FDI but termed as portfolio investment. On the other hand, Agiomirgianakis et al. (2003) define FDI as capital flows

arising from the behaviour of multinational companies (MNCs). Therefore, determinants that may influence the behaviour of MNCs could have impact towards the direction and magnitude of FDI as well. The expansion of MNCs' activities on overseas may aim to exploit economies of scale and some locational advantages, mostly due to the pattern of host country products' life-cycle or because the competitors also involved in similar activities. Furthermore, FDI has two categories, namely inward FDI and outward FDI (Economy Watch, 2010). Specifically, Dunning (1995) describes three major types of FDI behind the investment motive. *Market-seeking FDI* aims to serve local and regional markets meanwhile also engage in the host country's production facilities replication. *Resource-seeking FDI* takes place when companies make investment abroad for acquiring resources that are unavailable in their countries, for instance, low-cost labour or raw materials whereas *efficiency-seeking FDI* occurs under the condition which the firms can generate profit from geographically dispersed activities under the common governance and economies of scale.

2.1.2 Economic Growth

There have been extensive researches looking into this context to examine the relationship between Foreign Direct Investment (FDI) and economic growth since this is a great concern over the years. Multi-national companies (MNCs) might attract extensive FDI particularly in a rapidly growth economic condition as they provide new prospects for generating profit. The consensus at current shows that FDI inflows and economic growth are positively connected, given that the host countries have better achievement in term of educational, technological or infrastructure development at its minimum level (Hansen & Rand, 2006). This relationship likewise further supported by the findings of Benacek, Gronicki, Holland and Sass (2000) that the potential economic growth has

improving FDI inflows but mainly on the context of productivity with foreign corporations. The authors also mentioned that the behaviour of domestic market-oriented investors and export-oriented investors may vary, in which they can have a significantly different impact on the host economy. Whilst, Dunning (1995) contended that MNCs which have equipped certain ownership and locational advantages would tend to invest in other countries with its advantages, and the production could “internalized” through FDI to capture both advantages effectively. Zhang (2001) reveals, too, that rapid growth of an economy triggers the aggregate demand to rise and then stimulates greater demand for investments, for both domestic and foreign. Additionally, host countries whose economic performances are better generally offer better infrastructures and facilities, thus there would be higher profit chances which in turn provide more FDI incentives. Sahoo (2006) also makes this point in his study that South Asian economies have made a transformation in order to attract FDI and proved an upward trend of FDI inflows has positive effect on economic growth in these countries. However, there was a research conducted by Choe (2003) by carrying out the Granger causality test to evaluate FDI or Gross Domestic Investment (GDI) and economic growth association. As a consensus, rapid economic growth does not contributed by economic growth and FDI inflows or GDI rates even though those variables have strong positive associations between one another. Although most studies have proven that there is a significant influence between the FDI and economic growth, some studies could not validate the hypotheses. Since there are extensive studies providing sufficient evidence regarding economic growth and FDI relationship compared among the developed and developing countries, it is essential to consider economic growth in this study.

2.1.3 Market Size

Market size plays an important roles in the manner in which FDI affects growth. According to the past research paper, market size generally use gross domestic product, GDP per capita, GDP growth rate and real GDP as the measurement and found that shown that an increase in market size is associated with increasing inward FDI into host economies (Cleeve, 2008; Lunn, 1980; Culem, 1988; Kalyoncu, Tuluca, & Yaprak, 2015; Karim & Othman, 2005; Voka & Dauti, 2015). In this research, GDP per capita is used by researchers to measure the market size.

Schmitz and Bieri (1972), indicated that a single equation model using aggregate data on US direct investment in the European Economic Community from 1952 to 1966 discover market size to be a significant determinant of foreign direct investment. According to Schneider and Frey (1985), real per capita GNP is the most important determinant of per capita FDI.

Filippaios, Papanastassiou, and Pearce (2003) indicated that there is a positive relationship between the local market size and FDI inflows on the ground that countries with a large local market permit foreign company to utilize economies of scale. According to Ang (2008), real GDP have positive relationship and significantly affect FDI inflows. In the other hands, Ang (2008) also indicated that growth rate of GDP apply a small positive effect on inward FDI. However, if host country is only used as a production base because of cheap production costs in order to export their products, thus the market size become insignificant (Agarwal, 1980).

According to Jordaan (2004), foreign direct investment will proceed to countries with larger and extending markets and higher purchasing power, where company can potentially receive a greater profit on their capital and

by implication gain higher revenue from their investments. Soumia and Abderrezzak (2013) found that similar result where greater salary levels are measure for the extension in the market size and purchasing power. The ordinary implication is that host countries with higher GDP per capita will offer higher and better chances for the industries to utilize their ownership advantages and thus, will attract more inflows of foreign investment that are market-seeking.

2.1.4 Inflation rate

The factor that affects foreign direct investment is inflation rate. It is the rate when the total price of products and services has risen, leading to a decline in the purchasing power of money. Higher inflation rate means that the economic is instability. Kinuthia and Murshed (2015) stated high and uncertain inflation rate will limit the development of a business in the local industry. However, most of the investor will choose to invest at the lower inflation rate (Nonnenberg & Mendonca, 2004). Foreign investors would have a higher incentive to invest in countries with lower inflation rate as the decrease in inflation rate stabilize the macroeconomic and financial environment, and this ensures a stable FDI return.

In the previous findings, it was a significant negative correlation among FDI and inflation rate. The high inflation rate, the FDI relatively will decline. According to Shahrudin, Yusof, and Satar (2010), Kinuthia and Murshed (2015) and Ibrahim and Abdel-Gadir (2015), lower inflation rate would lead to higher FDI, multinational corporation tend to invest their money in a more stable economy at which the degree of uncertainty is lower. Furthermore, investors will define a nation with high inflation rate as a risky economic environment. Moreover, Tang, Yip, and Ozturk (2014) stated that the government should consider providing a steady economic

growth while reducing the currency fluctuation, improve the efficiency of the financial institutions, utilize the tax incentives and reduce social uncertainty to attract more foreign investors and FDI inflows to Malaysia. Nonnenberg and Mendonca (2004) also mentioned that there is a significant negative nexus among FDI and inflation rate.

In different circumstances, some researchers are found positive sign among inflation rate and FDI. According to Saleem, Zahid, Shoaib, Mahmood and Nayab (2013) state that positive relationship exists among FDI with inflation. Besides, high inflation rate indicates high price levels and it brings higher production of products. So that, increase the investment from foreign firm due to higher production create higher profitability (Srinivasan, Kalaivani & Inrahim, 2011). The past research mentioned that there may have positive or negative nexus among inflation rate and FDI.

2.1.5 Exchange rate

The exchange rate is a measure of the value of a currency exchange to another currency. There has some past studies determine the impact of exchange rates on foreign direct investment. As an investor, movement of exchange rate is an important factor that they should consider whether invest in abroad (Osinubi & Amaghionyeodiwe, 2009). The lower FDI when the appreciation of exchange rate of the host country. The firm able to acquire cheaper assets in host country due to the wealth of foreigners will increase when the currency of host country depreciation. Whereas, lower FDI when appreciation of exchange rate of the host country (Kiyota & Urata, 2004).

There a positive relationship, when the currency appreciated and the FDI will increase. The investor believes that future profitability increasing and brings high expected on return when the exchange rate appreciated (Campa, 1993). In addition, the depreciation of exchange rate, the investor will choose to invest in domestic industries, so the FDI decreasing. Investor prefers to invest in the market with a weak currency. They will make investment when the exchange rate is high.

Based on Ang (2008) found a negative relationship between exchange rate and FDI. The appreciation of the real exchange rate appears to discourage FDI inflows. The appreciation currency value would lead to a lower relative wealth position of foreign investors and hence the higher relative cost of capital.

2.1.6 Trade Openness

Trade openness is countries or economies give the permission to have trade with another countries or economies. Trade openness where the country opens its market to permit international trade, hence the trade barriers will be reduced. Trade openness can be measured by imports plus exports. According to Jordaan (2004), the influence of trade openness on FDI depends on type of investment. When investments are market-seeking, trade constraint have positive effect toward FDI. This reason originate from “*tariff jumping*” hypothesis, which mean that, the foreign investor that intended to do the business in local markets can made a decision to build the subsidiaries in the domestic country if the products is hard to import to the country.

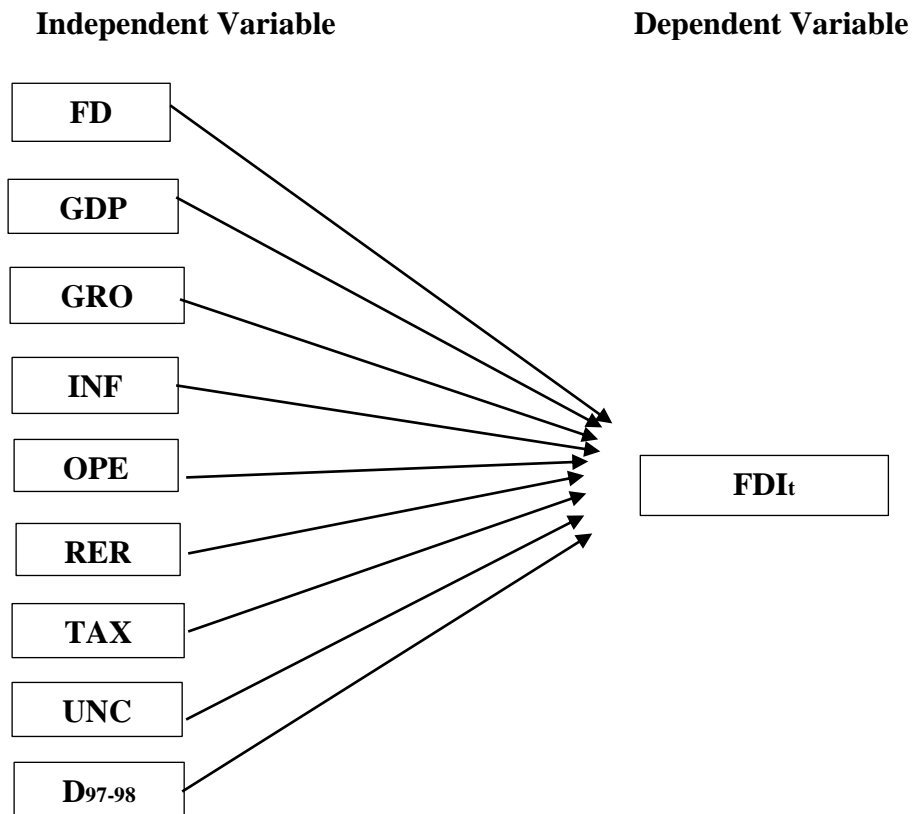
Futhermore, Liargovas and Skandalis (2012), Kravis and Lipsey (1982), Culem (1988), Chawla and Rohra (2015), Kariuki (2015), Ngendakumana

and Kaseke (2015) stated that, trade openness is one of the key factors that have strong positive impact on FDI inflows. Suleiman, Kaliappan and Ismail (2015) examines FDI determinants in the situation of Southern Africa Customs Union (SACU) member by apply pooled OLS as the main method, by using the pooled OLS method the result indicate that trade openness have positive and significant effect on FDI. Moreover, Awan, Khan, and Zaman (2011) had study the nexus among trade openness toward FDI. The researcher had conducted Augmented-Dickey Fuller (ADF) test and Co-integration as well as Error Correction Model (ECM) in their study. By using ADF and ECM test the researcher found that they have positive and significant nexus among trade openness and FDI. In addition, Srinivasan (2011) had study the nexus among trade openness and FDI by using fixed effects (FE) model and random effects (RE) model, the result showed that they have positive and statistically significant nexus among trade openness and FDI. Albert and Stuart (2008) applied vector auto regression (VAR) analysis to study the relationship between the trade openness and FDI in Sri Lanka. After conducted the test the researcher also found that the trade openness have positive affect on FDI in Sri Lanka.

Nevertheless, they are few researcher found that they have negative and insignificant relationship among trade openness and FDI. This study is conducted by Kolstad and Villanger (2008) and Busse and Hefeker (2007), they found that trade openness have insignificant relationship and negatively influence FDI inflow.

2.2 Review of Relevant Theoretical Models

Figure 2.1: Theoretical Model



Adapted from: Ang, J.B. (2008). Determinants of foreign direct investment in Malaysia. *Journal of Policy Modeling*, 30, 185-189.

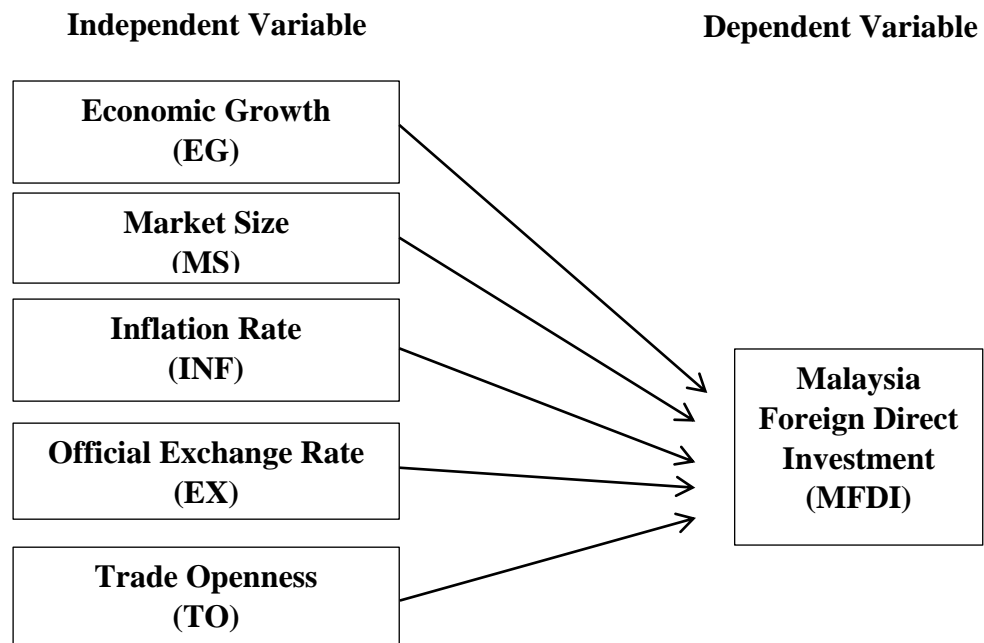
$$FDI_t = \beta_0 + \beta_1 FD_t + \beta_2 GDP_t + \beta_3 GRO_t + \beta_4 INF_t + \beta_5 OPE_t + \beta_6 RER_t + \beta_7 TAX_t + \beta_8 UNC_t + \beta_9 D_{97-98}$$

Where FDI_t is inflows of foreign direct investment to Malaysia. Financial development (FD_t) is measured by the percentage of private credit to gross domestic product. The researcher apply gross domestic product (GDP_t) to define market size of the nation. Moreover, the researcher used annual growth rate of

GDP (GRO_t) is to measure economic growth of the country. On the other hand, total government spending on transport and communication is used as the proxy for infrastructure development (INF_t). In addition, trade openness (OPET) is an indicator to define total of imports plus import over GDP. RER_t is the real exchange rate and TAX_t is the statutory corporate tax rate in Malaysia. UNCT indicated macroeconomic volatility related to output fluctuations. Last but not least the researcher also used dummy variable (D97-98) for the Asian financial crisis in year 1997-1998.

2.3 Proposed Theoretical / Conceptual Framework

Figure 2.2: The Determinants of Foreign Direct Investment in Malaysia



A new proposed model is reformed as shown above, economic growth (EG), market size (MS), inflation rate (INF), real exchange rate (EX), and trade openness (TO) are the variables that explaining the endogenous variable, Malaysia FDI inflows (MFDI).

$$MFDI_t = \beta_0 + \beta_1 EG_t + \beta_2 MS_t + \beta_3 INF_t + \beta_4 EX_t + \beta_5 TO_t$$

(Theoretical Model 2.2)

Annual gross domestic product growth rate is used to measure economic growth (EG) in this model. According to the study conducted by Globerman and Shapiro (2003), a well-developed country generally indicates a high level of its gross domestic product growth rate in the economy. This point has further proven by Ang (2008) in his research that growth domestic product growth rate is positively affecting the FDI inflows. On top of that, a high gross domestic product growth rate leads to a big flow of foreign investments in that particular country.

Gross domestic product per capita (GDP per capita) is used by researchers to measure the market size (MS). Chakraborty and Basu (2002) mentioned that host country's size is measured by the variable that is found to be consistently and statistically significant. Also, there is another research from Culem (1988) to test the impact of market size for 14 countries within 1969-1982 which its results shown that countries with bigger market sizes have production in large scale. Investors also prefer rapid growing markets in which they offer more promising prospects. Besides, Cleeve (2008), Soumia and Abderrezzak (2013), Voka and Dauti (2015) also use GDP per capita to measure market size. Hence, market size can be considered as one of the factors to influence foreign investors' financial decision making.

INF indicates inflation rate. Inflation rate is found significant but have a negative relationship with FDI, as proposed by Demirhan and Masca (2008). By looking into this theoretically, increasing inflation rate in an economy would accelerate the cost of the production as well as the price of the domestic production. When the price of domestic products becomes comparatively expensive, this would less likely to attract foreign investors. Instead, they would go for lower-cost alternatives as they need to bear higher cost for labour or consuming resources.

EX is the indicator of official real exchange rate. Theoretically, foreign investors who prefer to invest in a particular country which only consume them lower capital and in an expectation that they able to gain more if the country's exchange rate depreciates in the future because the price or cost in that country becomes relatively lower. Likewise, the fact also supported by the study of Hara and Razafimahefa (2005) that a higher FDI inflow is attributable to the depreciation of exchange rate in the receiving country.

TO represents trade openness in this study. Hypothetically, increasing market opportunities is reliant on open economies. On this context, Moosa and Cardak (2006) and Demirhan and Masca (2008) are mutually agree that trade openness plays significant role to country's foreign direct investment. Reason being, majority of investors would still prefer to make their investments in those countries without trade barriers upon foreign goods, such as tariffs and import taxes.

2.4 Hypothesis Development

Hypotheses testing have been formulated to examine the nexus among explained variable and explanatory variables. The hypotheses are compute as below:

H_0 : There is no nexus among all independent variables and MFDI inflow.

H_1 : There is nexus among all independent variables and MFDI inflow.

H_0 : $\beta_1 = 0$ (There is no nexus among economic growth and MFDI inflow.)

H_1 : $\beta_1 \neq 0$ (There is nexus among economic growth and MFDI inflow.)

$H_0: \beta_2 = 0$ (There is no nexus among market size and MFDI inflow.)

$H_1: \beta_2 \neq 0$ (There is nexus among market size and MFDI inflow.)

$H_0: \beta_3 = 0$ (There is no nexus among inflation rate and MFDI inflow.)

$H_1: \beta_3 \neq 0$ (There is nexus among inflation rate and MFDI inflow.)

$H_0: \beta_4 = 0$ (There is no nexus among exchange rate and MFDI inflow.)

$H_1: \beta_4 \neq 0$ (There is nexus among exchange rate and MFDI inflow.)

$H_0: \beta_5 = 0$ (There is no nexus among trade openness and MFDI inflow.)

$H_1: \beta_5 \neq 0$ (There is nexus among trade openness and MFDI inflow.)

2.5 Conclusion

As a conclusion, the project have been examined the five factors that may influencing the decision of FDI such as economic growth, market size, inflation rate, exchange rate and trade openness. Those research have been supported by the pass study, therefore the variables are indicate as significant towards FDI in Malaysia. In order to obtain reliable observation, research methodology is important to have a trustworthy database to compute an accuracy analysis.

CHAPTER 3: METHODOLOGY

3.0 Introduction

Methodology is a set of rules or system to overcome the research problem. In order to achieve the objectives, the researcher needs to choose from the various procedures, models and method of research methodology. Therefore, the researcher has to point out the steps of method used in the process of analyzing the data. In this chapter the question of how to collect data, the reason of choosing this method to obtain data, techniques used to analyzing sets of data and any others question will be answered. The previous researcher have provided the effective ways to collect and analyze the data thus it make the researcher can easily choose and make decision in the right position that may prepared a strong answer to the research question. Other than that, the following sub topics will be discussed on the research design, method of data collection, data processing and methods of data analysis.

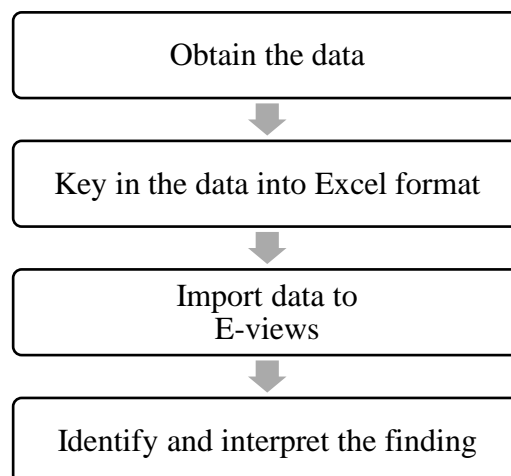
3.1 Research Design

In this study is to examine the nexus among the explained variable which is a MFDI and explanatory variables which are economic growth, market size, inflation rate, exchange rate and trade openness.

3.2 Data Collection Method

Time series data is a collection of data that can be categories as annually, semi-annually, quarterly and monthly basis. The data that used in the project is time series, our observation period will be on year 1970 until year 2015 in Malaysia. All data collected was a secondary data. Researcher used this type of data due to it help to reduce the time consuming, it make the project can be effectively complete on time with quality works. Besides, World Bank has provided an accurate and completely data that enable researcher can easily obtain it help to save cost in the process of collecting a secondary data. The researcher have collecting data from World Bank database on those variables which will affected FDI in Malaysia such as economic growth, market size, inflation rate, exchange rate and trade openness. The annual GDP have been used as the proxy for economic growth, GDP per capita as the indicator for market size. Furthermore, annual consumer price as a proxy for inflation, while the indicator for exchange rate is exchange rate per USD. Besides, the data of trade openness is calculated by using import plus with export in USD as an indicator. Meanwhile, after all the data have been obtained it reflect that the quantitative research is officially done.

3.3 Data Processing



Source: Developed for the research

Researchers must verify and compile data frequently for the purpose of make sure that exact data are selected for the analysis. Data processing involves some important steps. The first step is researcher will obtain data needed from World Bank. The following step is researchers will key in the data into Excel format and import data to E-views, popular econometric software to estimate time series data. Furthermore, researchers identify and interpret the finding subjected to the research objective.

3.4 Data Analysis

In this research, Electronic Views (Eviews) is used to run and test the regression analysis

3.4.1 Descriptive Analysis

Thompson (2008) refers descriptive analysis as a summary of collected data to explain what has occurred in the sample or population. This analysis also assists in organizing and presenting the quantitative data in the manner of manageable table. It helps the researcher to simplify large amount of data and describe the data in more sensible way (Trochim, 2006). On the other hand, Samad (2004) in his study also describes the performance of Islamic and conventional commercial bank in Bahrain within 1991-2001 by applying the descriptive financial ratio analysis. Users may more comprehend on the results since descriptive analysis provides the summaries about the measures in a simpler manner and generally forms every quantitative data analysis in basic manner (Trochim, 2006). Thus, descriptive statistics are included in this study to provide further description and analysis of data.

3.4.2 Correlation Analysis

Correlation analysis defined as Pearson's correlation coefficient that measures the strength of the relationship between dependent variable and independent variables. The correlation coefficient with +1 indicates the two variables are positively related while correlation coefficient with -1 indicates the two variables are negatively correlated with each other. Lee and Hsieh (2012) in their previous study investigate the relationship among the capital, profitability and risk for Asian banks in the period of 1994-2008 by using this analysis. Thus, researchers use Pearson correlation analysis to analyse the degree of variables are correlated with each other in this research paper.

3.4.3 E-views

E-Views is used to define the econometric analysis for example time series analysis, cross-sectional analysis, panel data analysis and forecasting. The E-Views concerned the application of spreadsheet and database technologies with statistical software. In addition, it help in supporting undocumented file format for data storage. (Schwert, 2010), stated the data can be speedy develops a statistical relation and it also can be used to predict the future values of data by using the E-Views.

According to Startz (2009), E-Views is used to estimate both simple regressions and multiple regressions. Moreover, the researcher used E-view for the diagnostic checking. After run the test the researcher can know have multicollinearity, autocorrelation, and heteroscedasticity problem arise or not. In addition, researcher conduct model specification test to examine model is correctly specified or incorrectly specified. The

researcher also runs the normality test to know whether the error term is normally distributed or not normally distributed by using the E-Views.

3.4.4 Multiple Linear Regressions

According to Gujarati and Porter (2009), multiple linear regressions model is there have more than two explanatory variables (X_i) with respect on one explained variable (Y). Dependent variable (Y) is depends on two or more explanatory variables (X_i). The function can be forecast the result and the nexus among independent variables respect to one dependent variable.

Furthermore, the researcher has used multiple linear regression model for their study. The researcher included five independent variables to explain FDI inflow to Malaysia, while the explanatory variables are economic growth, market size, inflation rate, exchange rate, and trade openness. The researchers form the estimation model by using foreign direct investment as dependent variable, 5 variables have been contains into estimated model. The multiple linear regression model formed at below:

$$FDI_t = \beta_0 + \beta_1 EG_t + \beta_2 MS_t + \beta_3 INF_t + \beta_4 EX_t + \beta_5 TO_t + \mu_t$$

Where FDI indicate inflow of foreign direct investment in Malaysia. Moreover, β is modulus apply to determine the degree it will influence foreign direct investment. EG is economic growth, MS is market size, INF is inflation rate, EX is exchange rate, TO is trade openness, and μ is error term.

This assumption of parameter (β) in the model should be in linear form and it should not have any relationship among the independent variables. This is because when they have relationship between independent variables,

multicollinearity problem will happen and will lead to the results become biased. On the other hand, the researcher use variance inflation factor (VIF) to calculate whether they have multicollinearity or not.

3.4.5 T-test Statistic

Similarly, t-test statistic is considered as one of the Statistical Data Analysis procedures that generally used for hypothesis testing. It tests the methods related with two explanatory samples (Lucey, 2002). The T-test statistic also examine if the impacts differences in the two samples have happen by chance. Other than that, the sample populations are assumed to have equivalent variances and have normal distribution. According to Lucey (2002), interval or ratio data is required in the T-test statistic in term of data collection. Specifically, statistics T-test analyzes the data collected by using the t-test by way of determining a P-value that indicating the likelihood that people will get the result by chance. Hence, the researchers will reject null hypotheses when the P-value of T-test falls below 0.01, 0.05, or 0.1, and conclude that independent variable and dependent variable are significantly related.

3.4.6 F-test Statistic

F-test statistic is one of the statistical tests to measure the whole significance of regression. There is F-distribution of the test statistic under the null hypothesis. F-test statistic takes place when the particular model consists of more than three or multiple parameters. Generally, it is applicable whenever make comparison among the statistical models given that the models fit to its data set in the purpose to select the best-fit model

to the population. Specifically, it analyzes the data collected by analysts inherent with F-test statistic by way of determining the value of probability which indicates the probability that the one could achieve the result by opportunity. Thus, if the value of probability falls below 0.01, 0.05, or 0.10, researchers will take the alternative hypotheses into account and indicate that the endogenous variable can be significantly explained by the whole model.

3.4.7 Diagnostic test

The researcher uses various hypotheses testing to test the model because it might have econometric problem. Firstly, check the whether the model is free from multicollinearity, autocorrelation and heteroscedasticity problems. Besides, researcher also needs to test model specification and normality test.

3.4.7.1 Model Specification and Normality test

Model specification error is referring to a model that have correctly specified because heteroscedasticity and autocorrelation may be a potential problem in misspecification model. In order to make sure that model specification is correct or good mode, researcher should choose the relevant explanatory variables that should be consist in the model. Besides, selected independent variable is uncorrelated with error term. The researcher also should select an appropriate form of variables. The stable estimated parameter value is important. There is three type of model specification error which is omitting a relevant independent variable that plays important role

in the determination of dependent variable. Besides, model specification error occurs when including an unnecessary, irrelevant or non-inflation independent variable. When the researcher wrongly specifies a model, the problem might be arising. Gujarati and Porter (2009) state that, model specification error occurs if there consists of ellipsis of related variable or include not related variable. Lastly, wrong functional form of explained and explanatory variables is also a type of model specification error. The researcher can use Ramsey's RESET test to detect the model specification error. Ramsey (1969) state that if the result of Ramsey's RESET test shows that there is a model specification error it means that the presence of autocorrelation and heteroscedasticity problem is unable to solve. The researcher needs to changes the model in order to solve the problem.

3.4.7.2 Multicollinearity

Multicollinearity arises when there was some or all of the explanatory variables are highly correlated with one another. If it is present, the regression model has difficulty telling which explanatory variables are influencing the dependent variables. There was five practical consequences of multicollinearity which is large variances and covariances of OLS estimators, wider confidence interval, insignificant t ratio, a high R-squared but few significant t ratio and sensitivity of OLS estimators and their standard error to small changes in data. The multicollinearity problem may cause an effect on the regression model. If there is any correlation among the explained variable and explanatory variables it may causes the researcher enable to interpret the result correctly due to it may have opposite sign to the actual relationship.

Thus, in order to detect multicollinearity problem, there are several method to apply such as by evaluating a low R^2 value, observe and predict this by observing and analysing the reliability of the T-test, variance inflation factor (VIF) and tolerance (TOL). If the VIF of a variable exceeds 10, which the variable is said be highly collinear. Besides, if the TOL is closer to zero, the degree of collinearity of that variable with other explanatory will be greater and vice versa (Gujarati & Porter, 2009).

3.4.7.3 Heteroscedasticity

Researchers do the heteroscedasticity test in order to test for the constant variance of error terms. Researchers use Breusch-Pagan-Godfrey test to determine the heteroscedasticity problem in this research. Gujarati and Porter (2009) despite that when heteroscedasticity problem arise in a model which is have error terms that have an inconstant variance. There might larger variance while quantities of some explanatory variables contribute larger or smaller. Therefore, heteroscedasticity problem in the model will no more have minimum variances and cause an incorrect result. If heteroscedasticity arise in the model, it will difficult to solve the problem.

3.4.7.4 Autocorrelation

According to Gujarati and Porter (2009), autocorrelation refers to correlation in error term among component of observation order in period or space. In this research, researchers using time series data

and may cause correlation among disturbance terms. In the other hand, autocorrelation also might occur when researchers include too many irrelevant variables or omitted some important variables from the model. Researchers might get bias result when autocorrelation occurs in the model. Autocorrelation problem may arise in the model when the error term for any observation is related to the error term of other observation, thus researchers will run Breusch-Godfrey Serial Correlation LM Test to check for autocorrelation problem.

3.5 Conclusion

The process of data analysis can be proceed in the next chapter when the researcher completely determining the data and the methodology which is suitable to perform.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

Throughout this chapter, researchers will further to analyze and interpret the empirical result which derived from the collected data and identifying the independent variables which significantly affects MFDI through multiple linear regression method. Besides, the empirical results of ordinary least square and diagnostics checking are both included, such as multicollinearity, autocorrelation, heteroscedasticity, model specification test and normality test. Clarification will be provided based on the outcomes presented in the tables.

4.1 Descriptive Analysis

Table 4.1: Descriptive analysis

	MFDI	EG	INMS	INF	EX	TO
Mean	3.785406	6.334130	7.924860	3.564452	2.941055	1.444598
Median	3.501085	6.715000	8.056263	3.067734	2.729454	1.448050
Maximum	8.760533	11.71000	9.333080	17.32898	3.924375	2.204100
Minimum	0.056692	-7.360000	5.869946	0.290008	2.176883	0.736700
Std. Dev.	1.759481	3.726264	0.921444	2.945009	0.566517	0.444468
Skewness	0.645822	-1.524228	-0.421301	2.668678	0.475321	0.130199
Kurtosis	3.836285	5.917275	2.551292	12.19986	1.766867	1.694188
Jarque-Bera	4.538126	34.12354	1.746690	216.8225	4.646651	3.398156
Probability	0.103409	0.000000	0.417553	0.000000	0.097947	0.182852
Sum	174.1287	291.3700	364.5436	163.9648	135.2885	66.45150
Sum Sq. Dev.	139.3098	624.8269	38.20769	390.2885	14.44236	8.889837
Observations	46	46	46	46	46	46

Source: Developed for the research

Descriptive statistics are used to describe the basic features of the data in a study. The function of the descriptive statistics is providing the simple summaries about the sample and the measures. Together with the simple graphics analysis, it forms the basis of virtually every quantitative analysis of data. The objective of descriptive statistic is used to present quantitative descriptions in a manageable form. In a research we can know that there have three major types of estimates of central tendency which are mean, median and mode.

The mean or average is probably the most commonly used method of describing central tendency. According on the table we can observe that the mean of MFDI is 3.785406. The median of the MFDI is 3.501085. It show that Malaysia have good result in foreign direct investment because the result of mean and median is consider high and the most important thing is it is constant. On the other hand, we can observe that the maximum of foreign direct investment is 8.760533 and the minimum is 0.056692. In addition, after run the test the result showed that the standard deviation of Malaysia foreign direct investment is 1.759481. Moreover, skewness of Malaysia FDI is 0.645822 and the value of kurtosis is 3.836285.

Besides, according to the table we also can know the descriptive statistic of economic growth in Malaysia. The table show that the mean of Malaysia is 6.334130. The median of economic growth of Malaysia is 6.715000. The maximum of economic growth is 11.71000 and the minimum of economic growth is -7.360000. In addition, the amount of standard deviation is 3.726264. The skewness of Malaysia is -1.524228 and the kurtosis is 5.917275.

Moreover, the mean of market size in Malaysia is 7.924860 and the median of Malaysia's market size is 8.056263. In addition, the maximum market size of Malaysia is 9.333080 and the minimum market size of Malaysia is 5.869946. The

standard deviation of market size is 0.921444. The skewness is -0.421301 and the kurtosis is 2.551292.

Furthermore, according to the table we also can know the descriptive statistic of inflation rate in Malaysia. On the table show that the mean of inflation rate in Malaysia is 3.564452. The median of inflation rate of Malaysia is 3.067734. The maximum of inflation rate is 17.32898 and the minimum of inflation rate is 0.290008. In addition, the amount of standard deviation is 2.945009. The skewness of Malaysia is - 2.668678 and the kurtosis is 12.19986.

In addition, the mean of exchange rate in Malaysia is 2.941055 and the median of Malaysia's exchange rate is 2.729454. In addition, the maximum exchange rate of Malaysia is 3.924375 and the minimum exchange rate of Malaysia is 2.176883. The standard deviation of exchange rate is 0.566517. The skewness is 0.475321 and the kurtosis is 1.766867.

Lastly, the mean of trade openness in Malaysia is 1.444598 and the median of Malaysia's trade openness is 1.448050. In addition, the maximum trade openness of Malaysia is 2.204100 and the minimum trade openness of Malaysia is 0.736700. The standard deviation of trade openness is 0.444468. The skewness is 0.130199 and the kurtosis is 1.694188.

4.2 Correlation Analysis

Table 4.2: Correlation Analysis

	MFDI	EG	INMS	INF	EX	TO
MFDI	-	-	-	-	-	-
EG	0.446054	-	-	-	-	-
INMS	0.134329	-0.180449	-	-	-	-
INF	0.344205	0.221099	-0.327970	-	-	-
EX	-0.209197	-0.384888	0.528778	-0.395157	-	-
TO	0.204884	-0.154557	0.716651	-0.299778	0.717698	-

Decision rules:

There is no serious correlation among the dependent and independent variables if the correlation is less than 0.8.

Conclusion:

Since the correlation among the variables is not exceeding 0.8, we have sufficient evidence to conclude that there is no serious correlation among the independent variables at the significance level of 0.10.

4.3 Empirical Result of Multiple Linear Regressions Model

Table 4.3: MFDI is explained by EG, INMS, INF, EX, & TO
(Ordinary Least Squares)

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	1.266769	2.512716	0.504143	0.6169
EG	0.149619	0.060084	2.490149	0.0170
INMS	0.200492	0.319210	0.628090	0.5335
INF	0.185292	0.075751	2.446078	0.0189
EX	-1.377826	0.571008	-2.412972	0.0205
TO	2.335499	0.811799	2.876941	0.0064
R-squared	0.475879			
Adjusted R-squared	0.410364			
F-statistic	7.263649			
Prob(F-statistic)	0.000064			

$$\widehat{MFDI}_t = 1.266769 + 0.149619EG_t + 0.200492 INMS_t + 0.185292INF_t - 1.377826EX_t + 2.335499TO_t$$

se = (2.512716) (0.060084) (0.319210) (0.075751)

p-value = (0.6169) (0.0170)* (0.5335) (0.0189)*

se = (0.571008) (0.811799)

p-value = (0.0205)* (0.0064)*

$n = 46$ $R^2 = 0.475879$ $\bar{R}^2 = 0.410364$ Prob(F-statistic) = 0.000064*

*significant at 0.10 significance level

The utilization of E-views 6 had assisted researchers to obtain the empirical results of multiple linear regressions as shown above, with the data collected annually within the period of year 1970 to 2015. Researchers will be subsequently

carrying out the diagnostic checking through several tests in order to examine if the model consists of multicollinearity, heteroscedasticity and autocorrelation problem, to make sure the model is correctly specified as well as the normal distribution of error term in the multiple linear regressions.

4.3.1 T-Statistic Test

T-test will be used in this study in the purpose of determining whether the explanatory variables is significant to the explained variable by assuming the model is normally distributed at $\alpha = 0.10$.

Hypothesis:

$H_0 : \beta_{Economic\ Growth} = 0$ ($\beta_{Economic\ Growth}$ is not significant)

$H_1 : \beta_{Economic\ Growth} \neq 0$ ($\beta_{Economic\ Growth}$ is significant)

Decision rules:

We reject H_0 if value of probability for t-test is less than 0.10. Otherwise, we do not reject H_0 .

Conclusion:

We reject H_0 since the P-value of economic growth display in the table 4.1 is 0.0170, which less than 0.10. Thus, there is sufficient evidence to conclude that economic growth significantly affecting the foreign direct investment in Malaysia at 10% significant level.

$H_0 : \beta_{Market Size} = 0$ ($\beta_{Market Size}$ is not significant)

$H_1 : \beta_{Market Size} \neq 0$ ($\beta_{Market Size}$ is significant)

Decision rules:

We reject H_0 if value of probability for t-test is less than 0.10. Otherwise, we do not reject H_0 .

Conclusion:

We do not reject H_0 since the P-value of market size display in the table 4.1 is 0.5335, which more than 0.10. Thus, there is insufficient evidence to conclude that market size significantly affecting the foreign direct investment in Malaysia at 10% significant level.

$H_0 : \beta_{Inflation Rate} = 0$ ($\beta_{Inflation Rate}$ is not significant)

$H_1 : \beta_{Inflation Rate} \neq 0$ ($\beta_{Inflation Rate}$ is significant)

Decision rules:

We reject H_0 if the value of probability for t-test is less than 0.10. Otherwise, we do not reject H_0 .

Conclusion:

We reject H_0 , since the P-value of inflation rate display in the table 4.1 is 0.0189, which less than 0.10. Thus, there is sufficient evidence to conclude that inflation rate significantly affecting the foreign direct investment in Malaysia at 10% significant level.

$H_0 : \beta_{Exchange Rate} = 0$ ($\beta_{Exchange Rate}$ is not significant)

$H_1 : \beta_{Exchange Rate} \neq 0$ ($\beta_{Exchange Rate}$ is significant)

Decision rules:

We reject H_0 if the value of probability for t-test is less than 0.10. Otherwise, we do not reject H_0 .

Conclusion:

We reject H_0 since the P-value of exchange rate display in the table 4.1 is 0.0205, which less than 0.10. Thus, there is sufficient evidence to conclude that exchange rate significantly affecting the foreign direct investment in Malaysia at 10% significant level.

$H_0 : \beta_{Trade Openness} = 0$ ($\beta_{Trade Openness}$ is not significant)

$H_1 : \beta_{Trade Openness} \neq 0$ ($\beta_{Trade Openness}$ is significant)

Decision rules:

We reject H_0 if the value of probability for t-test is less than 0.10. Otherwise, we do not reject H_0 .

Conclusion:

We reject H_0 since the P-value of trade openness display in the table 4.1 is 0.0064, which less than 0.10. Thus, there is sufficient evidence to conclude that trade openness significantly affecting the foreign direct investment in Malaysia at 10% significant level.

4.3.2 F-Statistic Test

F-test is used in this research paper to determine the overall significance of the economic model (Spanos, 1986).

Hypothesis:

$H_0 : \beta_i = 0$ (no linear relationship)

$H_1 : \beta_i \neq 0$ (at least one independent variable affects Y)

Where $\beta_i = \beta_1, \beta_2, \dots, \beta_n$

Decision rules:

We reject H_0 if the P-value of F-test is less than 0.10. Otherwise, we do not reject H_0 .

Conclusion:

We reject H_0 because the probability value of F-test is 0.000064, which less than 0.10. Therefore, there is sufficient evidence for us to conclude that there is at least one independent variable is significant in explaining the dependent variable (Gujarati & Porter, 2009).

4.3.3 Model Specification Test

Hypothesis:

H_0 : The model is correctly specified.

H_1 : The model is not correctly specified.

Decision rules:

- 1) We do not reject H_0 if P-value of F-stat more than 0.10, indicating that the model is correctly specified.
- 2) We reject H_0 if P-value of F-stat less than 0.10, indicating that the model is not correctly specified (Gujarati & Porter, 2009).

Table 4.3.1: Ramsey RESET Test

F-statistic	0.992137	Prob. F(1,39)	0.3254
Log likelihood ratio	1.155576	Prob. Chi-Square(1)	0.2824

Conclusion:

We reject H_0 as the probability value of F-statistic (0.3254) is more than 0.10. Hence, we have enough evidence to conclude that the model is correctly specified at the significance level of 0.10.

4.3.4 Normality Test

Hypothesis:

H_0 : Error term is normally distributed.

H_1 : Error term is not normally distributed.

Decision rules:

- 1) We do not reject H_0 if the P-value for JB-stats is more than 0.10, indicating that the error term is normally distributed.
- 2) We reject H_0 if the P-value for JB-stats is less than 0.10, indicating that the error term is not normally distributed (Brooks, 2008).

Table 4.3.2: Jarque-Bera Normality Test

Jarque-Bera	3.341178
Probabillity	0.188136

Conclusion:

As value of probabillity for JB stat is 0.188136, which is more than 0.10, we do not reject H_0 . Therefore, there is sufficient evidence to conclude that the error term is normally distributed at the significance level of 0.10.

4.3.5 Multicollinearity

Hypothesis:

H_0 : Multicollinearity problem does not exist.

H_1 : Multicollinearity problem exists.

Decision rules:

- 1) We do not reject H_0 if VIF less than 10, indicating that there is no serious multicollinearity problem.
- 2) We reject H_0 if VIF more than 10, indicating that there is a serious multicollinearity problem (Baum, 2006)

Table 4.3.3: Variance Inflation Factor (VIF) Analysis

Independent Variables	R^2	Variance Inflation Factor (VIF)
EG	0.190770	$\frac{1}{(1 - 0.190770)} = 1.2357$
INMS	0.531133	$\frac{1}{(1 - 0.531133)} = 2.1328$
INF	0.184929	$\frac{1}{(1 - 0.184929)} = 1.2269$
EX	0.612358	$\frac{1}{(1 - 0.612358)} = 2.5797$
TO	0.688425	$\frac{1}{(1 - 0.688425)} = 3.2095$

Table 4.3.4: VIF value indication

VIF value	Indication
VIF = ∞	Perfect multicollinearity problem
VIF ≥ 10	Serious multicollinearity problem
1 < VIF < 10	No serious multicollinearity problem

Conclusion:

Since the VIF for each independent variable is not greater than 10 as a thumb of rule, there is adequate evidence to indicate that no serious multicollinearity suspected among independent variables at the significance level of 0.10.

4.3.6 Heteroscedasticity

Hypothesis:

H_0 : Heteroscedasticity problem does not exist.

H_1 : Heteroscedasticity problem exists.

Decision rules:

- 1) We do not reject H_0 if P-value of F-stat more than 0.10, indicating that there is no heteroscedasticity problem.
- 2) We reject H_0 if P-value of F-stat less than 0.10, indicating that there is a heteroscedasticity problem (Spanos, 1986).

Table 4.3.5: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.364974	Prob. F(5,40)	0.8695
Obs*R-squared	2.007035	Prob. Chi-Square(5)	0.8482
Scaled explained SS	2.058493	Prob. Chi-Square(5)	0.8410

Conclusion:

We do not reject H_0 since P-value of F-stat is 0.8482, which is more than 0.10, Hence, there is sufficient evidence to conclude that there is no heteroscedasticity problem at the significance level of 0.10.

4.3.7 Autocorrelation

Hypothesis:

H_0 : There is no autocorrelation problem.

H_1 : There is an autocorrelation problem.

Decision rules:

- 1) We do not reject H_0 if P-value of the Chi-squared more than 0.10, indicating that there is no autocorrelation problem.
- 2) We reject H_0 if P-value of the Chi-squared more than 0.10, indicating that there is an autocorrelation problem (Stock & Watson, 2006).

Table 4.3.6: Breusch-Godfrey Serial Correlation LM Test

F-statistic	8.713537	Prob. F(2,38)	0.0008
Obs*R-squared	14.46307	Prob. Chi-Square(2)	0.0007

Conclusion:

Since the value of probability for Chi-square (0.0007) shown in the table 4.3 is less than 0.10, we reject H_0 . Thus, we do not have sufficient evidence to conclude that there is no autocorrelation problem in the model at the significance level of 0.10.

4.4 Problem Solving

Although the model is correctly specified with the normal distribution of error term as well as detected to be free from multicollinearity and heteroscedasticity problem, the model is still suspected to have autocorrelation problem. Thus, researchers have attempted to solve the autocorrelation problem by adding a new variable, one period lag of the dependent variable, LAGMFDI at the right hand side of the model to stand in the company of the other exogenous variables. The value in a variable that is arising from an earlier point of time is referred to a lagged variable. A new model 1 is shown as below:

4.4.1 Empirical Results of Model 1

Table 4.4: MFDI is explained by EG, INMS, INF, EX, TO & LAGMFDI
(Model 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.825912	2.389846	-0.764029	0.4496
EG	0.168967	0.053185	3.176958	0.0030
INMS	0.259308	0.296475	0.874638	0.3873
INF	0.184264	0.067479	2.730703	0.0095
EX	-0.466813	0.587008	-0.795242	0.4314
TO	1.086472	0.803570	1.352057	0.1843
LAGMFDI	0.429719	0.119128	3.607203	0.0009
R-squared	0.610329			
Adjusted R-squared	0.548802			
F-statistic	9.919679			
Prob(F-statistic)	0.000001			

$$\widehat{MFDI}_t = -1.825912 + 0.168967EG_t + 0.259308INMS_t + 0.184264INF_t$$

$$se = (2.389846) \quad (0.053185) \quad (0.296475) \quad (0.067479)$$

$$p\text{-value} = (0.4496) \quad (0.0030)^* \quad (0.3873) \quad (0.0095)^*$$

$$- 0.466813EX_t + 1.086472TO_t + 0.429719LAGMFDI_t$$

$$se = (0.587008) \quad (0.803570) \quad (0.119128)$$

$$p\text{-value} = (0.4314) \quad (0.1843) \quad (0.0009)^*$$

$$n = 45 \text{ after adjustment } R^2 = 0.610329 \quad \bar{R}^2 = 0.548802$$

$$\text{Prob(F-statistic)} = 0.000001^*$$

*significant at 0.10 significance level

4.4.2 Interpretation of Coefficients

4.4.2.1 Economic Growth

$\beta_1 = 0.168967$ indicates that when the economic growth increase by 1 percentage point, on average, the MFDI will increase by 0.168967 percentage points, holding other variables constant.

4.4.3.2 Market Size

$\beta_2 = 0.259308$ but the hypothesis testing showed that market size is insignificantly affects the MFDI, therefore, it cannot be interpreted.

4.4.3.3 Inflation rate

$\beta_3 = 0.184264$ indicates that when the inflation rate increase by 1 percentage point, on average, the MFDI will increase by 0.184264 percentage points, holding other variables constant.

4.4.3.4 Exchange rate

$\beta_4 = -0.466813$ but the hypothesis testing showed that exchange rate is insignificantly affects the MFDI, therefore, it cannot be interpreted.

4.4.3.5 Trade Openness

$\beta_5 = 1.086472$ but the hypothesis testing showed that market size is insignificantly affects the MFDI, therefore, it cannot be interpreted.

4.4.3.6 LAG Malaysia Foreign Direct Investment

$\beta_6 = 0.429719$ indicates that when the LAG Malaysia Foreign Direct Investment increase by 1 percentage point, on average, the MFDI will increase by 0.429719 percentage points, holding other variables constant.

4.4.4 T-Statistic test for Model 1

Hypothesis:

$$H_0 : \beta_i = 0, \text{ where } i = 1,2,3,4,5,6$$

$$H_1 : \beta_i \neq 0, \text{ where } i = 1,2,3,4,5,6$$

Decision rules:

We reject H_0 if the P-value of t-test is less than 0.10. Otherwise, we do not reject H_0 .

Table 4.4.1: Results of T-statistic for Model 1

	T-statistic	Decision Making ($\alpha = 0.10$)
β_1 (EG)	0.0030	Reject
β_2 (INMS)	0.3873	Do not reject
β_3 (INF)	0.0095	Reject
β_4 (EX)	0.4314	Do not reject
β_5 (TO)	0.1843	Do not reject
β_6 (LAGMFDI)	0.0009	Reject

Based on the t-statistic test results in model 1, the null hypotheses for β_1 , β_3 , and β_6 are rejected but the null hypotheses for β_2 , β_4 , and β_5 on the other hand are not rejected. This results of the new model indicated that β_1 , β_3 , and β_6 are significant at the significance level of 10% meanwhile they are also significant to the model. In contrast, β_2 , β_4 , and β_5 are insignificant to the model as they are not significant at 10% accordingly. P-value is another alternative which also provides similar outcomes to explain the T-statistic test and significance of variables in the model. Likewise, P-approach shown that, β_2 , β_4 , and β_5 should not be rejected because the p-values are greater than 0.10 significance level.

4.4.5 F-Statistic Test

F-test are used to determine the overall significance of the economic model after solving the problem of autocorrelation.

Hypothesis:

$H_0 : \beta_i = 0$ (no linear relationship)

$H_1 : \beta_i \neq 0$ (at least one independent variable affects Y)

Where $\beta_i = \beta_1, \beta_2, \dots, \beta_n$

Decision rules:

We reject H_0 if the P-value of F-test is less than 0.10. Otherwise, we do not reject H_0 .

Conclusion:

We reject H_0 as the value of probability of F-test (table 4.4) is 0.000001, which less than 0.10. Therefore, there is sufficient evidence for us to conclude that there is at least one independent variable is significant in explaining the dependent variable.

4.5 Conclusion

The outcome of Ordinary Least Squares (OLS) and diagnostics checking are both included in this chapter. After completing the diagnostics checking, researchers found the model does not have multicollinearity and heteroscedasticity problem. The model is also correctly specified and the normal distribution of error term in the model is confirmed. However, the model was found to have serial correlation problem. On this context, researchers have included one variable in the model to solve this problem. All the empirical results are clearly shown in the form of tables and figures. The explanations are also provided in the manner of clear and precise. In next chapter, there will be the summary of the overall research study.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

In chapter 4, researcher have analyse the significance between dependent variable and independent variables by conducted the diagnostic checking test, F-test and T-test. Foreign Direct Investment are as a part of contributor to the economic growth. Throughout this paper, the results showed that there are some factors may influence the decision of investor in the country to involve themselves in foreign direct investment. Therefore, the policy maker are plays an important role on how to make the investor contribute to the foreign direct investment inflow of Malaysia. Meanwhile, the implication of policy by government is needed in order to compare the major findings with previous study. Other than that, the limitation of this paper and recommendation on future study also has been stated in this chapter.

5.1 Summary of Statistical Analyses

Table 5.1: Summary of diagnostic checking in OLS model

Diagnostic Checking	P-value	Decision	Result
Model Specification	0.3254	Do not reject H_0	Model Specification is correct.
Normality test	0.188136	Do not reject H_0	Error term is normally distributed.
Multicollinearity	-	-	VIF of each variable is less than 10, no serious multicollinearity problem.
Heteroscedasticity	0.8482	Do not reject H_0	Heteroscedasticity does not exist.
Autocorrelation	0.0007	Reject H_0	Autocorrelation exists.

Table 5.2: Summary of statistical analysis in OLS model

Pooled OLS	P-value	Decision	Result
Economic Growth	0.0170*	Reject H_0	Significant
Market Size	0.5335	Do not reject H_0	Insignificant
Inflation Rate	0.0189*	Reject H_0	Significant
Exchange Rate	0.0205*	Reject H_0	Significant
Trade Openness	0.0064*	Reject H_0	Significant
Significance of Model (F test)	0.000064*	Reject H_0	Model is significant
R-squared	0.475879		

*Significance level at 10%

Source: Table 4.3 developed for research

In previous chapter, researchers have conducted F-test to examine the significance of the multiple linear regressions model. Thereafter, when the model is proved to be significant, diagnostic checking was then performed. Based on the statistical results, the econometric model has passed all econometric problems in OLS model, except autocorrelation. On the context of T-test results, the market size has shown to be insignificant to MFDI at significance level of 0.10. Despite of there being insignificant between MFDI and market size, other explanatory variables have respectively shown significant influencing MFDI.

Table 5.3: Summary of diagnostic checking in Model 1

Diagnostic Checking	P-value	Decision	Result
Model Specification	0.1022	Do not reject H_0	Model Specification is correct.
Normality test	0.931349	Do not reject H_0	Error term is normally distributed.
Multicollinearity	-	-	VIF of each variable is less than 10, no serious multicollinearity problem.
Heteroscedasticity	0.9900	Do not reject H_0	Heteroscedasticity does not exist.
Autocorrelation	0.1979	Do not reject H_0	Autocorrelation does not exist.

Table 5.4: Summary of statistical analysis in Model 1

Pooled OLS	P-value	Decision	Result
Economic Growth	0.0030*	Reject H_0	Significant
Market Size	0.3873	Do not reject H_0	Insignificant
Inflation Rate	0.0095*	Reject H_0	Significant
Exchange Rate	0.4314	Do not reject H_0	Insignificant
Trade Openness	0.1843	Do not reject H_0	Insignificant
Lagged MFDI	0.0009*	Reject H_0	Significant
Significance of Model (F test)	0.000001*	Reject H_0	Model is significant
R-squared	0.610329		

*Significance level at 10%

Source: Table 4.4 developed for research

In order to remove autocorrelation in OLS model, researchers came out with a solution by way of adding one period lag of dependent variable, LAGMFDI in the model 1 shown in table 4.9. According to Keele and Kelly (2006), OLS regression including a lagged dependent variable frequently treated as a way for eradicating the model that consisted of autocorrelation as well as taking into account the political process's dynamic effect. Researchers introduced a lagged variable in the model not only it can get rid of the presence of autocorrelation, it is essential to develop theoretical foundation to examine the effect of past value on present time to best fit up the model. Otherwise, it will result in the omission of variable bias and the results may become invalid. Besides, the circumstance of adding lagged dependent variable in the model also demonstrated by Achen (2000) in his study. After including LAGMFDI, researchers conducted the test again and make sure that autocorrelation does not exist in the model, with the probability value of 0.1979 as compared to initial results of OLS model.

After ridding the autocorrelation in the OLS regression model, there is some variation in the explanatory variables. Although autocorrelation no longer exists, there are only EG, INF and LAGMFDI can be jointly significantly explaining MFDI as compared to the OLS regression model shown in the table 4.1. In this case, Keele and Kelly (2006) stated that the lagged dependent variable may also make the coefficients of independent variables become biased given the presence of residual autocorrelation. Moreover, Achen (2000) also make this point that the explanatory power of the independent variables might be suppressed if there is addition of lagged dependent variables in the model. While there are some arguments in the relevancy of introducing lagged variable in the model, it stands the greatest model particularly for dynamic models (Keele & Kelly, 2006). However, despite of that, there are still 50% of variables are significant in model 1, high R-squared (61.03%) as one of the criteria for good model selection and the p-value of F-statistic (0.000001) that make the model desirable to be accepted by researchers for prediction.

5.2 Discussion on Major Findings

5.2.1 Economic Growth

Economic growth has always been emphasized and considered as an important determinant to influence the FDI inflow to a country (Benacek, Gronicki, Holland, & Sass, 2000). This fact is consistent to the results in previous chapter, which has indicated that economic growth was significant to MFDI statistically. An upward trend in gross domestic product (GDP) growth rate generally symbolizes the soundness of governmental economic policies and its effectiveness which makes it looks attractive and lead to foreign direct investment as it allocates new opportunities to generate profit. Many studies have been conducted in this field and there are few researchers such as Dunning (1995), Zhang (2001),

and Chakraborty and Basu (2002) have also been carried out their extensive researches into this context. They have claimed that MNCs which hold some certain ownership advantages will make investment in other countries which have the locational advantages. Hansen and Rand (2006) also make the same point that MNCs can 'internalize' production through FDI by utilizing these advantages effectively. Conversely, Kahai (2011) has opposed standpoint against those general viewpoints in her study which observing traditional and non-traditional factors of foreign direct investment grow in the developing countries by employing 55 developing countries during 1998 and 2000. As a result, it is failed to prove that economic growth has the significant relationship with FDI.

5.2.2 Market Size

In this study market size are measured by gross domestic product per capita and represent how good the local citizen demand for the goods and services. Multiple past researchers like Cleeve (2008), Soumia and Abderrezzak (2013) and Voka and Dauti (2015) also mention that market size are using GDP per capita as measurement. Market size is one of the factors that investor make decision want invest in the market or not.

However, the result attained from chapter 4 illustrate that GDP per capita is insignificantly influence FDI inflows in Malaysia at $\alpha = 0.10$. By way of explanation there is no significant nexus among GDP per capita and FDI inflow to Malaysia. In short, GDP per capita is not a determinant FDI inflow in Malaysia.

This result is line with the Loree and Guisinger (1995), Wei (2000) as well as Agarwal (1980) stated that an insignificant relationship between real GDP per capita with FDI. In their research on the determinants of US FDI, Loree and Guisinger (1995) attributed this insignificant result because of

the segmentation by market orientation of FDI flows in their research. According to Agarwal (1980), state that if the host country is only used as a production base because of cheap production costs in order to export their products, thus the market size become insignificant.

5.2.3 Inflation Rate

The inflation rate found to be significant at $\alpha = 0.10$. There is a positive nexus among inflation rate and MFDI. According to past research by Saleem, Zahid, Shoaib, Mahmood and Nayab (2013) and Srinivasan, Kalaivani and Inrahim (2011), there is positive nexus among inflation rate and FDI. When the country consists of higher inflation rate, price levels of product will relatively become higher. In this case, it will attract more foreign investor because it brings higher profitability (Srinivasan, Kalaivani & Inrahim, 2011).

On the other hand, some researchers are found negative sign between inflation rate and foreign direct investment. Some investor will define high inflation rate means that the economy of that country is uncertainty. According to Shahrudin, Yusof, and Satar (2010), Kinuthia and Murshed (2015) and Ibrahim and Abdel-Gadir (2015) stated that, higher foreign direct investment when the inflation rate is lower. The investor prefers to invest in lower risk economy environment.

5.2.4 Exchange Rate

Based on the study, researcher have found that there was negative relationship between exchange rate and foreign direct investment at 0.10 significant level Ang (2008). It showed foreign direct investment is affecting by exchange rate. Based on the study of Aqeel and Nishat (2004), an increase in foreign direct investment may lead to appreciate in the exchange rate of host country. While, if there was depreciate in exchange rate, then will be a decrease in FDI as well. As mention in the research of Campa (1993), when appreciate in exchange rate not only increase in profitability but also convey high expected in return. On the other hand, the study of Kiyota and Urata (2004), have indicated the adverse results, increase in FDI of host country, the exchange rate will depreciate due to high currency value that causes the capital of investment drop. The results showed inconsistent between the statements of appreciate in exchange rate of host country, FDI will led to increase or drop. This happens because of the high expectation of investors towards the return and on economy.

5.2.5 Trade Openness

In this study, it shown that the trade openness have significant and positive nexus toward MFDI inflows at $\alpha=0.10$. The researchers, Liargovas and Skandalis (2012), Kravis and Lipsey (1982), Culem (1988), Chawla and Rohra (2015), Kariuki (2015), Ngendakumana and Kaseke (2015), Suleiman, Kaliappan and Ismail (2015) was found that trade openness have positive relationship to foreign direct investment. The country that willing to accept foreign investors to make the investment in their country is important to that specific country. Moreover, Awan, Khan, and Zaman (2011) and Srinivasan (2011) mention that trade openness have positive relationship and significantly affect FDI inflow. Moreover, Liargovas and

Skandalis (2012) found free trade agreements (FTA) to be helpful in incur FDI inflow. When they have significant and positive nexus between trade openness and FDI inflow, which mean that when trade openness. All these studies indicate that if trade openness raise, it will also increase FDI inflow.

On the other hand, Kolstad and Villanger (2008), Busse and Hefeker (2007) found that they have insignificant and negative relationship between trade openness and FDI inflow.

5.3 Implications of Study

In this study offers a foresight on decision making for the investors and policy makers like Central Bank as well as Federal Government. This research paper is determining the factors that influence FDI inflow to Malaysia.

For the purpose of interact with foreign investors and firms who supplement of FDI inflows to the country, government should implement the internationalization program in the financial market (The Research and Innovation Council of Finland, 2010). Furthermore, government should implement the strategy clearly towards the FDI attractiveness in the local market for example raising the FDI inflow by foster the import and export behaviour (Vaisanen, 2012).

First of all, investors can forecast future expansion of a country through the rise and fall in gross domestic product growth. Investors aware the country is deserve to invest represent the particular country's evolution is strong.

In this research paper, inflation rate have a positive significant to the FDI inflows in Malaysia. According to Srinivasan (2011), higher inflation rate represent higher

cost of goods. Fiscal and monetary policy implement by central bank and government in order to manage the inflation rate that may lead investors' behaviour. Due to investor who target for more revenue with the ideas of more anticipate of revenue.

Besides, this research showed exchange rate is significant and negatively affect inflows of foreign investment. If rate of exchange of RM per US\$ raise, the amount foreigner want to use US\$ to exchange RM is become lesser. When the exchange rate becomes higher, investor will invest in Malaysia because more worth as higher revenue. Bank Negara Malaysia found an ideal exchange rate to attract FDI inflow.

Last but not least, policies applied in order to increasing FDI inflow will have to be revisited in terms of choosing the particular type of investment that is required. Economic reform policies need underline by government and shift towards a free market where can proceed to serve the economy to distribute its resources quickly. While loosen the restrictions on trade account, lesser cost will be charged on international trade, which is import and export. Thus, firms import raw material with a cheaper price enables them to generate more output, thence increasing productivity and promote economic growth. Moreover, greater export raising the level of firms' production and export in host country, and contribute a greater firm's profit and raising a surplus in country income. In additional, superior export enables reducing of current account loss. It is also contribute in innovative capabilities of the economy and boosting the supporting industries and institutions are important.

5.4 Limitations of Study

Sample size of the research is the first limitation of this study. The research only consists of 46 years which is from year 1970-2015 and it obtain on annual basis. The data are insufficient to reach the minimum requirement of 100 sample size. The main reason that causes the researcher cannot get more data is due to the data of Foreign Direct Investment only compounded on yearly basis and it have data since the year 1970. Therefore, in order to have a consistent data, researcher required to collect data of all independent and dependent variable according to yearly basis and started from the year 1970.

Besides, the second limitation that found in this research is the problem that facing in the test of diagnostic checking although the model is correctly specified with the normal distribution of error term as well as detected to be free from multicollinearity and heteroscedasticity problem, but it still suspected to have autocorrelation problem due to P-value of Chi-squared less than 0.10. Based on the problem solving stated in Chapter 4, the researcher transformed the model into autoregressive model by creating a new variable, one period lag of the dependent variable, MFDI(-1) in the model. Luckily, the results does not disappoint the researcher, it showed the sufficient results but it should be have more solution to solve it. The problem faces are out of the researcher knowledge to solve it. Those limitation are provide a platform to others researcher but not to detract from significance of findings.

5.5 Recommendations for Future Research

Firstly, empty sample size also a problem when run data. We strongly advise to next researchers, who interest in this research, need to increase the sample size as larger as possible. Our research is determinants influencing foreign direct investment decision in Malaysia. While Malaysia independent only 60 years, it only can get 46 years data if use annually data. The data are insufficient to reach the minimum requirement of 100 sample size. So the investigators are suggested to use monthly, quarterly or semi-annual data to replace yearly data. The larger sample size will reduce the chance of getting multicollinearity, autocorrelation and heteroscedasticity problems.

Besides that, the future researchers are encouraged to use other software such as State or Gretl to run data due to limitations of Eview. Gretl is easy to use and has a good graphical user interface. It can be saved, edited and rerun in a parallel batch system. It also has very good data import or export and graphics facilities. Through Gretl the researcher can more convenient and easy to get the desired result, it is benefit to the research that involves many sequential steps.

5.6 Conclusion

Lastly, the research studies attempts to further explore the impact of explanatory variables toward the MFDI. This study consists of 46 years data which is from year 1970-2015 and it obtains on annual basis. The findings show that at least one explanatory variable is related to the MFDI. In the result of diagnostic checking in OLS model, the explanatory variable such as economic growth, inflation rate, exchange rate, and trade openness are significant in determining MFDI. Conversely, market size is insignificant in determining MFDI.

Nevertheless, there is autocorrelation in OLS model. In order to remove autocorrelation, the researchers add one period lag of dependent variable, LAGMFDI. In the new model, the market size, exchange rate and trade openness has shown to be insignificant between MFDI. Other explanatory variables such as economic growth, inflation rate and lagged Malaysia foreign direct investment have respectively shown to be significant to MFDI at significance level of 0.10.

REFERENCES

- Achen, C. H. (2000). Why lagged dependent variables can suppress the explanatory power of other independent variables. *Princeton University presented at the Annual Meeting of the Political Methodology, Los Angeles.*
- Aga, A. A. K. (2014). The impact of foreign direct investment on economic growth: A case study of Turkey 1980–2012. *International Journal of Economics and Finance*, 6(7), 71.
- Agarwal, J. (1980). Determinants of foreign direct investment: A survey. *Weltwirtschaftliches Archiv Bd*, 116, 739-773.
- Agiomirgianakis et al. (2003). The determinants of foreign direct investment: A panel data study for the OECD countries. *Department of Economics, School of Social Sciences, Discussion Paper Series No. 03/06*
- Albert, W., & Stuart, M. (2008). A var analysis on the determinants of FDI inflows: The case of Sri Lanka. *Applied Econometrics and International Development*, 8(1), 189-198.
- Ang, J. B. (2008). Determinants of foreign direct investment in Malaysia. *Journal of Policy Modeling*, 30(1), 185-189.

- Antwi, S., Mills, E. F., & Zhao, X. (2013). Impact of macroeconomic factors on economic growth in Ghana: A co integration analysis. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 3(1), 35-45.
- Aqeel, A., Nishat. M. (2004). The determinants of foreign direct investment in Pakistan. *The Pakistan Development Review*, 651-664.
- Awan, M. Z., Khan, B., & Zaman, K. U. (2011). Economic determinants of foreign direct investment (FDI) in commodity producing sector: A case study of Pakistan. *African Journal of Business Management*, 5(2), 537-545.
- Baum, C.F. (2006). *An Introduction to Modern Econometrics Using Stata*. Texas: State Press.
- Benacek, V., Gronicki, M., Holland, D., & Sass, M. (2000). The determinants and impact of foreign direct investment in Central and Eastern Europe. *Journal of United Nations*, 9(3), 163-212.
- Brooks, C. (2008). *Introductory Econometrics for Finance*. (2nd.ed.). Cambridge: Cambridge University Press.
- Busse, M., & Hefeker, C. (2007). Political risk, institutions and foreign direct investment. *European Journal of Political Economy*, 23(2), 397-415.

- Campa, J. M. (1993). Entry by foreign firms in the United States under exchange rate uncertainty. *The Review of Economics and Statistics*, 75(4), 614-622.
- Chakraborty, C. & Basu, P. (2002). Foreign direct investment and growth in India: A cointegration approach. *Applied Economics*, 34, 1061-1073.
- Chawla, K., & Rohra, N. (2015). Determinants of FDI: A literature review. *The International Journal of Business & Management*, 3(3), 227-250.
- Choe, J. I. (2003). Do foreign direct investment and gross domestic investment promote economic growth. *Review of Development Economics*, 7(1), 44-57.
- Cleeve, E. (2008). How effective are fiscal incentives to attract FDI to Sub-Saharan Africa?. *The Journal of Developing Areas*, 42(1), 135-153.
- Culem, C. (1988). The locational determinants of direct investments among industrialized countries. *European Economic Review*, 32, 885-904.
- Demirhan, E., & Masca, M. (2008). Determinants of foreign direct investment flows to developing countries: A cross-sectional analysis. *Prague Economic Papers*, 4(4), 356-369.

- Dunning, J.H. (1995). Reappraising the eclectic paradigm in an age of alliance capitalism. *Journal of International Business Studies*, 26(3), 461-491.
- Edwin, A. M. (2014). Foreign direct investment: A review from the Nigerian perspective. *Research Journal of Business and Management*, 1(3), 318-336.
- Emmanuel, O. N. (2014). Foreign direct investment and economic growth: The experience of CEMAC countries. *Journal of Finance & Economics*, 2(1), 01-14.
- Filippaios, F., Papanastassiou, M., & Pearce, R. (2003). The evolution of US outward foreign direct investment in the pacific rim: A cross-time and country analysis. *Applied Economics*, 35(16), 1779-1787.
- Globerman, S. & Shapiro, D. (2003). Governance infrastructure and US foreign direct investment. *Journal of International Business Studies*, 34(1), 19-39.
- Gujarati, D.N., & Porter, D.C. (2009). Basic Econometrics, 5th ed. USA: McGraw-Hill. Boston, MA:McGraw-Hill/Irwin.
- Hansen, H. & Rand, J. (2006). On the causal links between FDI and growth in developing countries. *The World Economy*, 29(1), 21-41.
- Hara, M. & Razafimahefa, I. F. (2005). The determinants of foreign direct investments into Japan. *Kobe University Economic Review*, 51, 21-34.

- Ibrahim, O. A., & Abdel- Gadir, S. E. M. (2015). Motives and determinants of FDI: A VECM analysis for Oman. *Global Business Review*, 16(6), 936-946.
- Jordaan, J. (2004). Foreign direct investment and neighbouring influences. *Unpublished Doctoral Thesis, University of Pretoria*.
- Kalyoncu, H., Tuluce, N., & Yaprak, Z. (2015). Determinants of foreign direct investment: An empirical analysis for Turkey. *Journal of Economic and Social Studies*, 5(2), 41-56.
- Karim, M., & Othman, Y. (2005). Does AFTA and China's entry into WTO affect FDI in ASEAN Countries?. *Asian Academy of Management Journal*, 10(1), 37-58.
- Karim, Z. A., Zaidi, M. A. S., Ismail, M. A., & Karim, B. A. (2012). The quality of institutions and foreign direct investment (FDI) in Malaysia. *Asian Journal of Accounting and Governance*, 3, 61-69.
- Kariuki, C. (2015). The determinants of foreign direct investment in the African Union. *Journal of Economics, Business and Management*, 3(3), 346-351.
- Kahai, S. K. (2011). Traditional and non-traditional determinants of foreign direct investment in developing countries. *Journal of Applied Business Research*, 20(1), 43-50.

- Keele, L., & Kelly, N. (2006). Dynamic models for dynamic theories: The ins and outs of lagged dependent variables. *Political Analysis, 14*(02), 186-205.
- Kinuthia, B. K., & Murshed, S. M. (2015). FDI determinants: Kenya and Malaysia compared. *Journal of Policy Modeling, 37*(2), 388-400.
- Kiyota, K., & Urata, S. (2004). Exchange rate, exchange rate volatility and foreign direct investment. *The World Economy, 27*(10), 1501-1536.
- Kolstad, I., & Villanger, E. (2008). Determinants of foreign direct investment in services. *European Journal of Political Economy, 24*(2), 518-533.
- Kravis, I., & Lipsey, R. (1982). The location of overseas production and production for export by U.S. multinational firms. *Journal of International Economics, 12*(3-4), 201-223.
- Lee, C. C. & Hsieh, M. F. (2012). The impact of bank capital on profitability and risk in Asian banking. *Journal of International Money and Finance.*
- Liargovas, P., & Skandalis, K. (2012). Foreign direct investment and trade openness: The case of developing economies. *Social Indicators Research, 106*(2), 323-331.

Loree, D., & Guisinger, S. (1995). Policy and non-policy determinants of U.S. equity foreign direct investment. *Journal of International Business Studies*, 26(2), 281-299.

Lucey, T. (2002). *Quantitative techniques*. Cheriton, NW: Cengage Learning EMEA.

Lunn, J. (1980). Determinants of U.S. direct in the E.E.C. *European Economic Review*, 13, 93-101.

Malik, S., & Malik, Q. A. (2013). Empirical analysis of macroeconomic indicators as determinants of foreign direct investment in Pakistan. *IOSR Journal of Business and Management*, 7(2), 77-82.

Moffett, M.H., Stonehill, A.I. & Eitheman, D.K. (2009). *Fundamentals of Multinational Finance*. (3th ed.). Boston: Addison Wesley.

Moosa, I. A. & Cardak, B. A. (2006). The determinants of foreign direct investment: An extreme bounds analysis. *Journal of Multinational Financial Management*, 16(2), 199-211.

Ngendakumana, L., & Kaseke, C. (2015). An analysis of factors affecting foreign direct investment in Zimbabwe (1980-2011). *Academic Research International*, 6(2), 114-127.

- Nonnemberg, M.B., & Mendonca, M.J.C. (2004). The determinants of foreign direct investment in developing countries. *Instituto de Pesquisa Economica Aplicada (IPEA), Rio de Janeiro.*
- Osinubi, T. S., & Amaghionyeodiwe, L. A. (2009). Foreign direct investment and exchange rate volatility in Nigeria. *International Journal of Applied Econometrics and Quantitative Studies*, 6(2), 83-116.
- Pondicherry, H., & Tan, P. H. P. (2017). The determinants of foreign direct investment (FDI) in Singapore. *Proceedings of the 12th Asia-Pacific Conference on Global Business, Economics, Finance and Social Sciences.*
- Saleem, F., Zahid, A., Shaoib, B., Mahmood, M., & Nayab, S. (2013). Impact of inflation and economic growth on foreign direct investment: Evidence from Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 4(9), 236-244.
- Samad, A. (2004). Performance of Interest-free Islamic Banks VIS-A-VIS Interest based Conventional Banks of Bahrain. *IIUM Journal of Economics and Management*, 12(2).
- Sahoo P. (2006). Foreign direct investment in South Asia: Policy, trends, impact and determinants. *Asian Development Bank Institute (ADB), Tokyo. ADB Institute, Discussion Papers, No. 56.*
- Schmitz, A., & Bieri, J. (1972). EEC tariffs and U.S. direct investment. *European Economic Review*, 3(3), 259-270.

Schneider, F., & Frey, B. (1985). Economic and political determinants of foreign direct investment. *World Development*, 13(2), 161-175.

Schwert, G. (2010). *EViews 7 User's Guide I*. Irvine CA: Quantitative Micro Software. Retrieved from <http://schwert.ssb.rochester.edu/a425/EV71.pdf>

Shahrudin, N., Yusof, Z., & Satar, N. H.M. (2010). Determinants of foreign direct investment: What matters most? *International Review of Business Research Papers*, 46(6), 235-245.

Soumia, Z., & Abderrezzak, B. (2013). The determinants of foreign direct investment and their impact on growth: Panel data analysis for AMU countries. *International Journal of Innovation and Applied Studies*, 2(3), 300-313.

Spanos, A. (1986). *Statistical foundation of econometric modelling*. Cambridge: Cambridge University Press.

Srinivasan, P. (2011). Determinants of foreign direct investment in SAARC nations: An econometric investigation. *The IUP Journal of Managerial Economics*, 9(3), 26-42.

Srinivasan, P., Kalaivani, M., & Ibrahim, P. (2011). An empirical investigation of foreign direct investment and economic growth in SAARC nations. *Journal of Asia Business Studies*, 5(2), 232-248.

- Startz, R. (2009). *Eviews illustrated for version 7*. United States: Quantitative Micro Software, LLC.
- Stock, J. H. & Watson, M. W. (2006). *Introduction to Econometrics*. (2nd ed.). Boston: Addison Wesley.
- Suleiman, N., Kaliappan, S., & Ismail, N. W. (2015). Determinants of foreign direct investment: Empirical evidence from Southern Africa Customs Union (SACU) countries. *Int. Journal of Economics and Management*, 9(1), 1-24.
- Tang, C. F., Yip, C. Y., & Ozturk, I. (2014). The determinants of foreign direct investment in Malaysia: A case for electrical and electronic industry. *Economic Modelling*, 43, 287-292.
- Takagi, S., & Shi, Z. (2011). Exchange rate movements and foreign direct investment (FDI): Japanese investment in Asia, 1987–2008. *Japan and The World Economy*, 23(4), 265-272.
- The Economic Watch. (2010). *Definition of foreign direct investment (fdi)*. Retrieved February 3, 2017, from <http://www.economywatch.com/foreigndirectinvestment/definition.html>
- The Research and Innovation Council of Finland.(2010). *Research and Innovation Policy Guidelines for 2011–2015*. Retrieved from http://www.rritrends.resagora.eu/uploads/22/Research%20and%20i%20novation%20policy%20guidelines_Finland.pdf

Thompson, C. B. (2009). Descriptive data analysis. *Air Medical Journal*, 28(2), 56-59.

Trochim, W. M. (2006, October 20). Descriptive statistics. *Research Method Knowledge Base*. Retrieved July 1, 2017, from <http://www.socialresearchmethods.net/kb/statdesc.php>

Tülüce, N. S., & Doğan, İ. (2014). The impact of foreign direct investment on SMEs' development. *Procedia - Social and Behavioral Sciences*, 150, 107-115.

Vaisanen. (2012). *The attractiveness of Finland in the host country screening of inward foreign direct investment: A case study*. Retrieved from https://helda.helsinki.fi/bitstream/handle/10138/37166/Master%20Thesis_Heta%20T.%20Vaisanen_Sep2012.pdf?sequence=2

Voka, I., & Dauti, B. (2015). Institutional determinants of foreign direct investment in Macedonia: Evidence from panel data. *European Journal of Business, Economics and Accountancy*, 3(4), 2056-6018.

Wei, S. (2000). How taxing is corruption on international investors?. *Review of Economics and Statistics*, 82(1), 1-11.

Zhang, H.L. (2001). Does foreign direct investment promote economic growth? Evidence from East Asian and Latin America. *Contemporary Economic Policy*, 19(2), 175-185.

Appendices

Appendix 1:

Empirical Result of Multiple Linear Regression Model

Dependent Variable: MFDI

Method: Least Squares

Date: 06/22/17 Time: 16:52

Sample: 1970 2015

Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.266769	2.512716	0.504143	0.6169
EG	0.149619	0.060084	2.490149	0.0170
INMS	0.200492	0.319210	0.628090	0.5335
INF	0.185292	0.075751	2.446078	0.0189
EX	-1.377826	0.571008	-2.412972	0.0205
TO	2.335499	0.811799	2.876941	0.0064
R-squared	0.475879	Mean dependent var		3.785406
Adjusted R-squared	0.410364	S.D. dependent var		1.759481
S.E. of regression	1.351066	Akaike info criterion		3.560773
Sum squared resid	73.01519	Schwarz criterion		3.799291
Log likelihood	-75.89777	Hannan-Quinn criter.		3.650123
F-statistic	7.263649	Durbin-Watson stat		1.076816
Prob(F-statistic)	0.000064			

Appendix 2:

Statistical Result for VIF Analysis

2.1 Economic Growth

Dependent Variable: EG

Method: Least Squares

Date: 06/22/17 Time: 20:52

Sample: 1970 2015

Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.89508	6.041013	2.631195	0.0119
INMS	-0.446945	0.826764	-0.540596	0.5917
INF	0.091755	0.196372	0.467253	0.6428
EX	-3.517434	1.378788	-2.551106	0.0146
TO	2.768198	2.065303	1.340335	0.1875
R-squared	0.190770	Mean dependent var		6.334130
Adjusted R-squared	0.111821	S.D. dependent var		3.726264
S.E. of regression	3.511753	Akaike info criterion		5.452430
Sum squared resid	505.6287	Schwarz criterion		5.651195
Log likelihood	-120.4059	Hannan-Quinn criter.		5.526888
F-statistic	2.416362	Durbin-Watson stat		1.824299
Prob(F-statistic)	0.064066			

2.2 Market Size

Dependent Variable: INMS
 Method: Least Squares
 Date: 06/22/17 Time: 20:52
 Sample: 1970 2015
 Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.291043	0.738917	8.513865	0.0000
EG	-0.015835	0.029292	-0.540596	0.5917
INF	-0.038250	0.036576	-1.045752	0.3018
EX	-0.084225	0.279056	-0.301822	0.7643
TO	1.466270	0.324513	4.518363	0.0001
R-squared	0.531133	Mean dependent var	7.924860	
Adjusted R-squared	0.485390	S.D. dependent var	0.921444	
S.E. of regression	0.661010	Akaike info criterion	2.112227	
Sum squared resid	17.91431	Schwarz criterion	2.310992	
Log likelihood	-43.58122	Hannan-Quinn criter.	2.186686	
F-statistic	11.61123	Durbin-Watson stat	0.153291	
Prob(F-statistic)	0.000002			

2.3 Inflation Rate

Dependent Variable: INF
 Method: Least Squares
 Date: 06/22/17 Time: 20:53
 Sample: 1970 2015
 Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.60976	4.791516	2.631684	0.0119
EG	0.057727	0.123546	0.467253	0.6428
INMS	-0.679221	0.649505	-1.045752	0.3018
EX	-1.682332	1.147545	-1.466027	0.1503
TO	0.636581	1.670718	0.381023	0.7052
R-squared	0.184929	Mean dependent var	3.564452	
Adjusted R-squared	0.105410	S.D. dependent var	2.945009	
S.E. of regression	2.785472	Akaike info criterion	4.989033	
Sum squared resid	318.1129	Schwarz criterion	5.187799	
Log likelihood	-109.7478	Hannan-Quinn criter.	5.063492	
F-statistic	2.325588	Durbin-Watson stat	1.270968	
Prob(F-statistic)	0.072433			

2.4 Exchange Rate

Dependent Variable: EX
 Method: Least Squares
 Date: 06/22/17 Time: 20:53
 Sample: 1970 2015
 Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.281754	0.587635	3.882943	0.0004
EG	-0.038946	0.015266	-2.551106	0.0146
INMS	-0.026322	0.087209	-0.301822	0.7643
INF	-0.029607	0.020196	-1.466027	0.1503
TO	0.844608	0.178603	4.728979	0.0000
R-squared	0.612358	Mean dependent var		2.941055
Adjusted R-squared	0.574540	S.D. dependent var		0.566517
S.E. of regression	0.369524	Akaike info criterion		0.949119
Sum squared resid	5.598462	Schwarz criterion		1.147884
Log likelihood	-16.82973	Hannan-Quinn criter.		1.023578
F-statistic	16.19194	Durbin-Watson stat		0.354141
Prob(F-statistic)	0.000000			

2.5 Trade Openness

Dependent Variable: TO
 Method: Least Squares
 Date: 06/22/17 Time: 20:54
 Sample: 1970 2015
 Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.696835	0.404284	-4.197130	0.0001
EG	0.015164	0.011314	1.340335	0.1875
INMS	0.226709	0.050175	4.518363	0.0001
INF	0.005543	0.014547	0.381023	0.7052
EX	0.417871	0.088364	4.728979	0.0000
R-squared	0.688425	Mean dependent var		1.444598
Adjusted R-squared	0.658028	S.D. dependent var		0.444468
S.E. of regression	0.259918	Akaike info criterion		0.245420
Sum squared resid	2.769849	Schwarz criterion		0.444185
Log likelihood	-0.644652	Hannan-Quinn criter.		0.319878
F-statistic	22.64740	Durbin-Watson stat		0.154576
Prob(F-statistic)	0.000000			

Appendix 3:

Model Specification Bias (Ramsey RESET Test)

Ramsey RESET Test:

F-statistic	0.992137	Prob. F(1,39)	0.3254
Log likelihood ratio	1.155576	Prob. Chi-Square(1)	0.2824

Test Equation:

Dependent Variable: MFDI

Method: Least Squares

Date: 06/22/17 Time: 16:54

Sample: 1970 2015

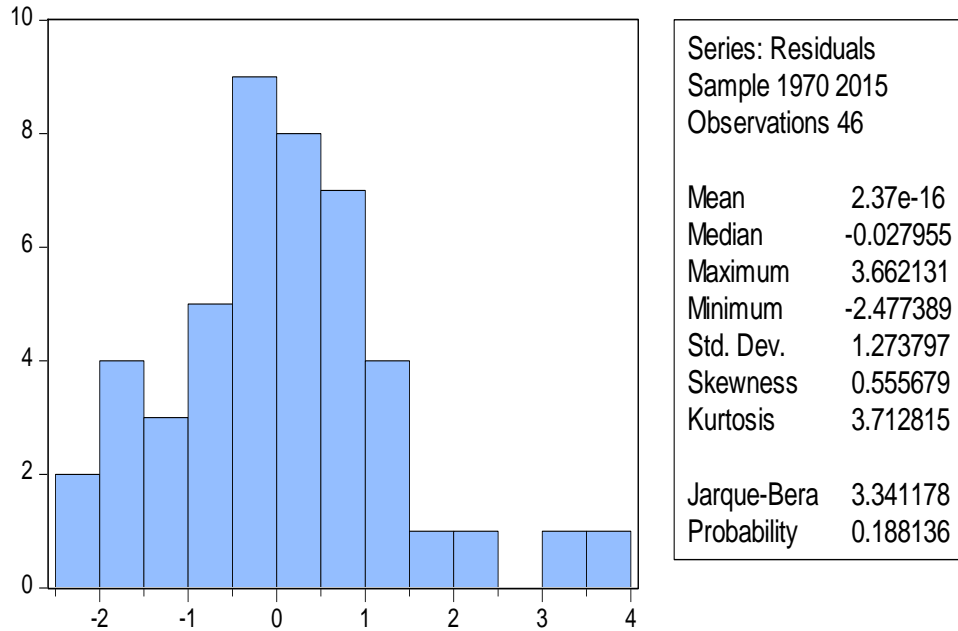
Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.733447	2.569371	0.285458	0.7768
EG	0.026055	0.137840	0.189027	0.8511
INMS	0.114481	0.330714	0.346163	0.7311
INF	0.008788	0.192717	0.045599	0.9639
EX	-0.029434	1.469247	-0.020033	0.9841
TO	0.047776	2.436042	0.019612	0.9845
FITTED^2	0.124657	0.125150	0.996061	0.3254

R-squared	0.488881	Mean dependent var	3.785406
Adjusted R-squared	0.410248	S.D. dependent var	1.759481
S.E. of regression	1.351199	Akaike info criterion	3.579130
Sum squared resid	71.20381	Schwarz criterion	3.857401
Log likelihood	-75.31998	Hannan-Quinn criter.	3.683372
F-statistic	6.217207	Durbin-Watson stat	1.105459
Prob(F-statistic)	0.000121		

Appendix 4:

Normality Test (Jarque-Bera Test)



Appendix 5:

Heteroscedasticity (Breusch-Pagan-Godfrey Test)

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.364974	Prob. F(5,40)	0.8695
Obs*R-squared	2.007035	Prob. Chi-Square(5)	0.8482
Scaled explained SS	2.058493	Prob. Chi-Square(5)	0.8410

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 06/22/17 Time: 16:53

Sample: 1970 2015

Included observations: 46

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.755256	5.099103	0.540341	0.5920
EG	0.068479	0.121930	0.561626	0.5775
INMS	-0.054826	0.647779	-0.084636	0.9330
INF	0.034774	0.153722	0.226212	0.8222
EX	-0.895278	1.158758	-0.772619	0.4443
TO	0.928890	1.647400	0.563852	0.5760

R-squared	0.043631	Mean dependent var	1.587287
Adjusted R-squared	-0.075915	S.D. dependent var	2.643249
S.E. of regression	2.741745	Akaike info criterion	4.976174
Sum squared resid	300.6866	Schwarz criterion	5.214692
Log likelihood	-108.4520	Hannan-Quinn criter.	5.065524
F-statistic	0.364974	Durbin-Watson stat	1.359876
Prob(F-statistic)	0.869461		

Appendix 6:Autocorrelation (Breusch-Godfrey Serial Correlation LM Test)

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	8.713537	Prob. F(2,38)	0.0008
Obs*R-squared	14.46307	Prob. Chi-Square(2)	0.0007

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 06/22/17 Time: 16:53

Sample: 1970 2015

Included observations: 46

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.990462	2.148381	-0.461027	0.6474
EG	-0.011623	0.052308	-0.222196	0.8254
INMS	0.087989	0.272051	0.323429	0.7481
INF	0.066125	0.066433	0.995361	0.3259
EX	0.083513	0.489419	0.170637	0.8654
TO	-0.070645	0.694465	-0.101726	0.9195
RESID(-1)	0.660375	0.159720	4.134586	0.0002
RESID(-2)	-0.368747	0.159147	-2.317027	0.0260
R-squared	0.314414	Mean dependent var		2.37E-16
Adjusted R-squared	0.188122	S.D. dependent var		1.273797
S.E. of regression	1.147746	Akaike info criterion		3.270247
Sum squared resid	50.05816	Schwarz criterion		3.588272
Log likelihood	-67.21569	Hannan-Quinn criter.		3.389381
F-statistic	2.489582	Durbin-Watson stat		1.984777
Prob(F-statistic)	0.033032			

Appendix 7:

Empirical Result of Multiple Linear Regression Model: Model 1

Dependent Variable: MFDI

Method: Least Squares

Date: 06/22/17 Time: 17:44

Sample (adjusted): 1971 2015

Included observations: 45 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.825912	2.389846	-0.764029	0.4496
EG	0.168967	0.053185	3.176958	0.0030
INMS	0.259308	0.296475	0.874638	0.3873
INF	0.184264	0.067479	2.730703	0.0095
EX	-0.466813	0.587008	-0.795242	0.4314
TO	1.086472	0.803570	1.352057	0.1843
LAGMFDI	0.429719	0.119128	3.607203	0.0009
R-squared	0.610329	Mean dependent var		3.815469
Adjusted R-squared	0.548802	S.D. dependent var		1.767375
S.E. of regression	1.187169	Akaike info criterion		3.323055
Sum squared resid	53.55605	Schwarz criterion		3.604091
Log likelihood	-67.76873	Hannan-Quinn criter.		3.427822
F-statistic	9.919679	Durbin-Watson stat		1.747841
Prob(F-statistic)	0.000001			

Appendix 8:

Model Specification Bias (Ramsey RESET Test): Model 1

Ramsey RESET Test:

F-statistic	2.808447	Prob. F(1,37)	0.1022
Log likelihood ratio	3.292254	Prob. Chi-Square(1)	0.0696

Test Equation:

Dependent Variable: MFDI

Method: Least Squares

Date: 06/22/17 Time: 22:29

Sample: 1971 2015

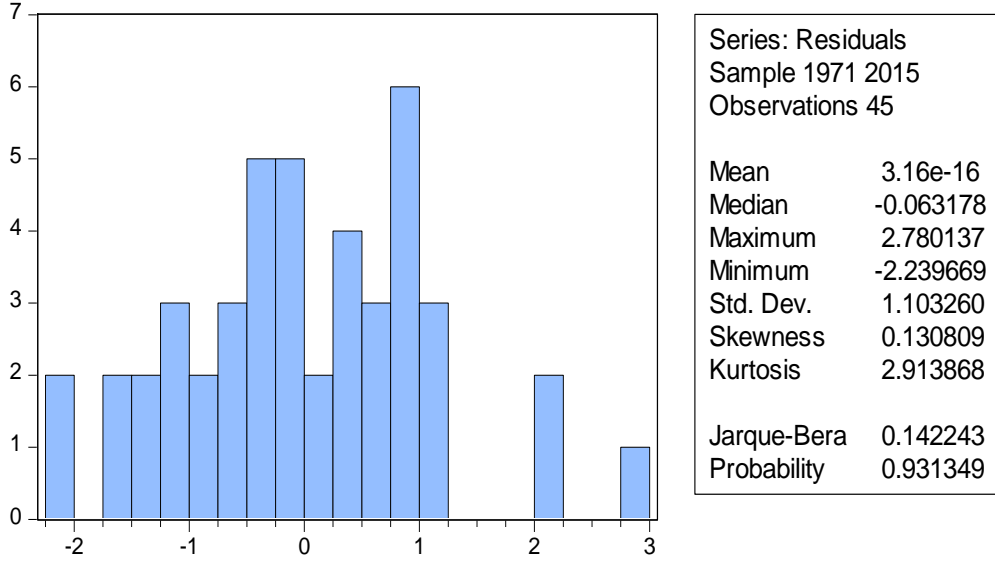
Included observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.747865	2.794749	0.267597	0.7905
EG	0.013091	0.106545	0.122866	0.9029
INMS	0.068745	0.311183	0.220914	0.8264
INF	0.026223	0.115065	0.227899	0.8210
EX	0.216867	0.703816	0.308131	0.7597
TO	-0.170086	1.085634	-0.156670	0.8764
LAGMFDI	-0.061874	0.315588	-0.196061	0.8456
FITTED^2	0.133185	0.079474	1.675842	0.1022

R-squared	0.637820	Mean dependent var	3.815469
Adjusted R-squared	0.569299	S.D. dependent var	1.767375
S.E. of regression	1.159890	Akaike info criterion	3.294338
Sum squared resid	49.77773	Schwarz criterion	3.615522
Log likelihood	-66.12260	Hannan-Quinn criter.	3.414072
F-statistic	9.308433	Durbin-Watson stat	1.648182
Prob(F-statistic)	0.000001		

Appendix 9:

Normality Test (Jarque-Bera Test): Model 1



Appendix 10:

Heteroscedasticity (Breusch-Pagan-Godfrey Test): Model 1

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.125149	Prob. F(6,38)	0.9925
Obs*R-squared	0.871988	Prob. Chi-Square(6)	0.9900
Scaled explained SS	0.595025	Prob. Chi-Square(6)	0.9965

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 06/22/17 Time: 22:29

Sample: 1971 2015

Included observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.724282	3.571699	-0.202784	0.8404
EG	0.029865	0.079487	0.375718	0.7092
INMS	0.110919	0.443091	0.250331	0.8037
INF	0.038397	0.100849	0.380739	0.7055
EX	0.098785	0.877301	0.112601	0.9109
TO	0.146223	1.200960	0.121755	0.9037
LAGMFDI	0.052606	0.178040	0.295475	0.7692

R-squared	0.019378	Mean dependent var	1.190135
Adjusted R-squared	-0.135458	S.D. dependent var	1.665068
S.E. of regression	1.774261	Akaike info criterion	4.126679
Sum squared resid	119.6240	Schwarz criterion	4.407716
Log likelihood	-85.85029	Hannan-Quinn criter.	4.231447
F-statistic	0.125149	Durbin-Watson stat	1.707495
Prob(F-statistic)	0.992548		

Appendix 11:

Autocorrelation
(Breusch-Godfrey Serial Correlation LM Test): Model 1

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.396662	Prob. F(2,36)	0.2605
Obs*R-squared	3.240237	Prob. Chi-Square(2)	0.1979

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 06/22/17 Time: 22:29

Sample: 1971 2015

Included observations: 45

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.181558	2.467773	-0.073572	0.9418
EG	0.005754	0.058828	0.097808	0.9226
INMS	0.029163	0.295226	0.098783	0.9219
INF	0.015453	0.072678	0.212626	0.8328
EX	-0.064268	0.643671	-0.099846	0.9210
TO	0.106719	0.880593	0.121189	0.9042
LAGMFDI	-0.028596	0.193524	-0.147766	0.8834
RESID(-1)	0.172912	0.259690	0.665841	0.5098
RESID(-2)	-0.239845	0.186714	-1.284556	0.2072

R-squared	0.072005	Mean dependent var	3.16E-16
Adjusted R-squared	-0.134216	S.D. dependent var	1.103260
S.E. of regression	1.174967	Akaike info criterion	3.337214
Sum squared resid	49.69974	Schwarz criterion	3.698547
Log likelihood	-66.08732	Hannan-Quinn criter.	3.471915
F-statistic	0.349165	Durbin-Watson stat	1.986382
Prob(F-statistic)	0.939983		