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GRADUATE SCHOOL OF SOCIAL SCIENCES DEPARTMENT
OF ECONOMICS

THE IMPACT
OF SOME MACROECONOMIC VARIABLES ON FDI INFLOWS
IN THE SELECTED COUNTRIES DURING THE PERIOD
(2000-2014)
PANEL-DATA MODEL

RESEARCH THESIS

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AUTHOR'S DECLARATION

The material included in this thesis has not been submitted wholly or in part for any academic award or qualification other than that for which it is now submitted.

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ABSTRACT

The study examined the determinants of foreign direct investment inflows to the selected countries (Malaysia, Singapore, Saudi Arabia, and Turkey) by using Panel-Data Model. The main objective of this study was to find out the major macroeconomic determinants of foreign direct investment in these countries during the period 2000 - 2014. According to empirical results all the variables Political stability, BOP, Inflation rates, and Exchange rate was statistically significant with high significant levels and considered as an important determinants of FDI flow to these countries, except economic growth variable. In this study we initially tested the unit root test, which includes test of Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) test, this test is used to find out stationarity degree in time-series of economic variables under study, according to ADF test and PP test with a constant and a general trend, that all data (time-series) integrated and stable and do not suffer from unit root and other test such as Pooled OLS Regression test; Fixed effect model; Random effect model; Hausman test; diagnostic tests and Heteroscedasticity test. Based on the findings we recommend that policies that encourage foreign direct investment such as provide the political stability case, improve the situation of the balance of payments, moderate exchange rate depreciation, the stability of inflation rates, should be implemented.

Key words: FDI Inflows, Macroeconomic variables, Panel data, Unit Root, Political stability.

ÖZET

Çalışma, Panel-Data Modeli kullanılar seçilen ülkelere (Malezya, Singapur, Suudi Arabistan ve Türkiye) doğrudan belirleyici yabancı yatırım girişini incelenmesi. Bu çalışmanın temel amacı, 2000 - 2014 yılları arasında bu ülkelerdeki doğrudan yabancı yatırımların önemli makroekonomik belirleyicilerini bulmaktır. Ampirik sonuçlara göre tüm değişikler Siyasi istikrar, BOP, Enflasyon oranları ve Döviz kuru istatistiksel olarak anlamlıdır Yüksek önem seviyeleri ile ekonomik büyüme değişkleri haricinde bu ülkelere doğrudan yabancı yatırımın önemli bir belirleyicisi olarak görülmektedir. Bu çalışmada, başlangıçda, Artırılmış Dickey-Fuller (ADF) ve Phillips-Perron (PP) testinin testini içeren unit root testini test ettik ve bu test, çalışma altındaki ekonomik değişklerin zaman serilerinde durağanlık derecesini bulmak için kullanıldı, Tüm veriler (Time-series) entegre ve istikrarlı ve birim kök ve Pooled OLS Regresyon testi gibi diğer testlerden muzdarip değil, sabit ve genel bir eğilim ile ADF testi ve PP testine göre; Sabit etki modeli; Rasgele etki modeli; Hausman testi; Muayene testler ve Heterosaskülarite testi. Elde edilen bulgulara dayanarak, siyasi istikrar sağlama, ödemeler dengesi durumunu iyileştirme, orta vadeli döviz kuru amortismanı ve enflasyon oranlarının istikrarı gibi doğrudan yabancı sermaye yatırımlarını teşvik eden politikaların uygulanmasını öneriyoruz.

Anahtar Kelimeler: Doğrudan Yatırım Girişleri, Makroekonomik Değişkenler, Panel Verileri, Birim Kök, Siyasal İstikrar.

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LIST OF ABBREVIATIONS

FDI	Foreign Direct Investment
PS	Political Stability
BOP	Balance of Payments
EG	Economic Growth
INF	Inflation
DEX	Doller Exchange
ADF	Augmented Dickey – Fuller test
PP	The Philips-Perron test
OLS	Ordinary Least Squares
OCED	Organisation for Economic Co-operation and Development
UNCTAD	United Nations Conference on Trade and Development
IMF	International Monetary Fund
MNCs, (MNEs)	Multinational Corporation, Multi-national enterprises
GDP	Gross Domestic Product
MENA	Middle East and North Africa
PM	Pooled Model
FEM	Fixed Effect Model
REM	Random Effect Model
WDI	World Development Indicators
UNESCO	United Nations Educational Scientific & Cultural Organization
GLS	Generalized Least Squares
LM	Lagrange Multiplier
OBS	Observations
PROB	Probability
MYS	Malaysia
SGP	Singapore
SAU	Saudi Arabia
TUR	Turkey
CDs	Cross-Sectional Dependence

DEDICATION

This research work is dedicated to the sake of science, praise be to Allah, who gave me the blessing of Islam and keeping me alive and granted me the good health to successfully completed this program, and also to my parents for their immense contribution morally, financially, also to my dear wife JIHAN and my lovely children VAN, LAVAN for their perseverance, courage and patience to endure my absence throughout the period of the program.

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1. INTRODUCTION

The foreign investment has witnessed a rapid growth during the 1980s, where the investment growth rate at the beginning of the eighties and till nineties of the last century has become higher than the growth rate of Foreign Trade, and thus, the foreign investment became one of the most important factors that led to the integration of the global economy. According to the World Investment Report (2000-2001), which is considered as the base year for this study, the foreign direct investment has globally reached approximately (1.3) trillion dollars, this figure is relatively an enormous number. It is known that the Foreign Direct Investment in the host country has many important advantages including administrative and technical skills advantages and facilitates the flow of new technology to those countries, promotes the efficiency of human resources, and increases employment rates which would be difficult to obtained from other sources, in addition, FDI has the ability to providing the capital which makes it able to connect with distribution and production networks at the global level. Furthermore, the flow of investment to the host countries is an important factor to overcome the local gap between savings and investments. The issue of Foreign Direct Investment and despite its importance has not been spared from the negative criticism made by some of the economic analysts about the impact of these investments on the host countries' economies. Some of the economic analysts believe that these flows have negative effects on the national economy, and others believe completely the opposite as they see that Foreign Direct Investment plays a substantial role in the economy of the host country in addressing economic problems and accelerate economic development, third opinion would believe that these flows carry both positive and negative effects. Actually, these debates and views are not new but are existed since the emergence of the Foreign Direct Investment itself.

In fact, the decision of Foreign Direct Investment and its continuance in the host countries depend on a lot of factors and features to stimulate foreign investor or what is known as attraction factors or determinants of FDI. In this study, we have tried to highlight the role of some of macroeconomic indicators (Qualitative and

Quantitative indicators) in attracting Foreign Direct Investment, which is the second axis and the most important in this study in the respective countries (Malaysia, Singapore, Saudi Arabia, Turkey) for the period from 2000 to 2014 and through the Panel Data model. Some of these variables are incorporeal such as political stability and the other indicators are quantitative such as: Balance of payments, economic growth, inflation and dollar exchange rate and its impacts on the approval or refusal of Foreign Direct Investment decision, hence, these countries whether developed or developing countries have proceeded to improve their investment settings and purify the business environment in order to get the largest amount of FDI inflows starting from restructuring the national economy which includes :economic reforms, rationalization of economic policy and consolidation of international relations. In addition, these countries sought to create an investment climate by providing a legal and regulatory framework for these foreign financial resources, to work on improving the performance of its economy by improving its macroeconomic indicators, and to try more stabilization and at acceptable levels as a part of a national policy framework that seeks to achieve progress and global economic openness. It is worth mentioning that the results of the econometrics tests for macroeconomic variables included in the standard model of this study have not shown accurate outcomes 100%, nevertheless, they were anticipated, close to reality and at the same time identical with a lot of economic literary writings. The results have shown that the status of Political Stability was one of the most important and most influential factor on Foreign Direct Investment inflows in the countries under study with a positive effect and high significance level, followed by the Balance of Payments (Current Account), while the Exchange Rate and Inflation Rate had a negative impact with high significance level, Economic Growth has been revealed at the end with a positive effect without any significance level. In conclusion, the results of this study were moderate and at least in terms of standard results and statistical tests. We concluded that this standard study has succeeded to some extent in estimating the correct model.

CHAPTER ONE

1.1 SIGNIFICANT OF THE RESEARCH:

The significance of this research is clarification and interpretation of the nature of the relationship between the dependent variable (FDI) and the explanatory variables which includes the macroeconomic indicators such as political stability, balance of payments, economic growth, inflation, exchange rate and the impact of those relationships in the economies and policies of these countries, Therefore it is important broach the subjects that have the economic and political weightiness , in addition to that this study maybe it gives the opportunity to attract the attention of specialists in this field by taking the positive aspects that have been raised in this study.

1.2 RESEARCH QUESTIONS:

Spin the research questions, or what is called in some literature (problem of research) on the impact of macroeconomic indicators on FDI flows which can summarize as follows:

• Macroeconomic indicators have an effect on decisions of foreign direct investment?

• Does the political stability, BOP which includes current account, economic growth, inflation rates, and the exchange rates have a significant impact on FDI decisions?

• Does the selected countries under study (Malaysia, Singapore, Saudi Arabia, and Turkey) conformity with an economic hypothesis??

1.3 RESEARCH HYPOTHESES:

Through research questions, following hypotheses were constructed:

• H0: The Selected countries are not in support of FDI hypothesis.

• H1: The Selected countries are in support of the hypothesis.

• H0: Other economics variables (political stability, BOP, economic growth, inflation rate and exchange rates) have an insignificant impact on FDI Inflows.

- H1: Other economics variables (political stability, BOP, economic growth, inflation rate and exchange rates) have a significant impact on FDI Inflows.

1.4 OBJECTIVES OF RESEARCH:

In order to achieve the research hypothesis, research has sought to achieve the following targets:

- Clarification the historical background of foreign direct investment and some definitions according to the opinions of specialists, organizations and International institutions.
- The effects of Foreign Direct Investment flows, advantages and disadvantages.
- Analysis the relationship of macroeconomic indicators and foreign direct investment in selected countries.
- Estimate the relationship between flows of foreign direct investment and macroeconomic indicators in selected countries.

1.5 CONTRIBUTION OF THE STUDY:

This study seeks to contribute to the existing literature by using (panel data) data obtained from 4 countries from 2000 to 2014 which was not analyzed in the previous studies in my country according to my knowledge. Particularly the global economy passed in this period over the important stages of economic transformations, such as the global financial crisis, political crises on the international level, conflicts of great powers as well as the world enters into the 21 Century which has famously by the technological revolution. Mainly this study measured the impact of macroeconomic indicators on FDI flows despite the existence of a significant gap between the countries under study in terms of political stability, the level of technological progress, geographic dimension, investment environment and the economic policies adopted in each country.

However, to my knowledge, this is the only research in my country uses panel data model to analyses the effect of Macroeconomic Indicators on FDI which cover the 2000-2014 period.

1.6 THE CONCEPTUAL FRAMEWORK OF FOREIGN DIRECT INVESTMENT

1.6.1 INTRODUCTION:

Foreign direct investment contained great importance in advancing the economic movement in any country, as it is one of the main economic activities in achieving economic growth. For the impacts of FDI in capital funding process, it is an important way to provide employment opportunities and transfer of technology, modernization of local industries and the development of the competitiveness of the export economy and optimize the use of scarce resources, And despite the fact that foreign direct investment is emerging on the economic scene since the mid-nineteenth century, but it occupied a prominent place in the global economy during the last three decades after that there have been important, including the development of capitalism ideas and governed by the reins of the global economy and the collapse of socialist ideas and to achieve national cross-corporate economic changes under the control of financial globalization on the world economy, all these changes have made foreign direct investment prominent phenomenon in the modern economy. In this chapter we will try to determine the conceptual framework for foreign direct investment, highlight on the historical background of foreign direct investment and some definitions about the concept of foreign direct investment.

1.7 THE CONCEPTUAL FRAMEWORK:

FIGURE1. The Conceptual Framework:
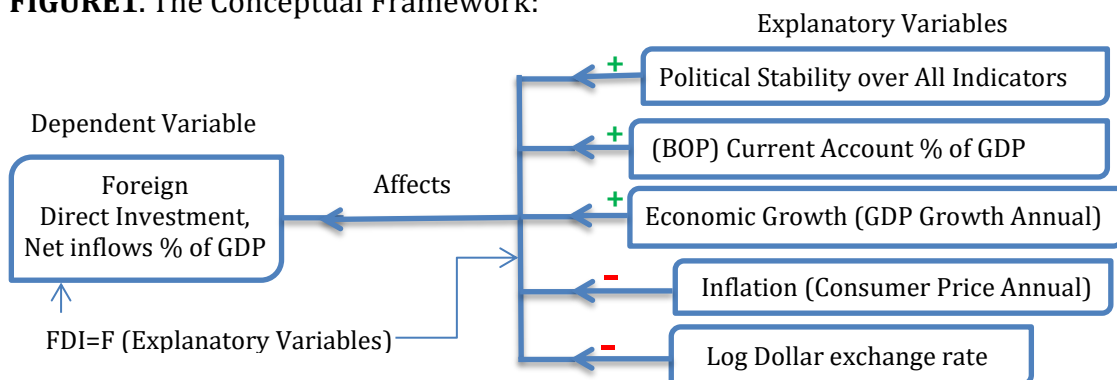
Source: from (Kwoba and Kibati, 2016/107-116)

1.8 THE HISTORICAL BACKGROUND OF FOREIGN DIRECT INVESTMENT:

It is difficult to determine a specific date for the start of direct foreign investment. However, the real growth of foreign investments dating back to the early nineteenth century to the beginnings of the industrial revolution and the industrial development after the accumulation of a great capital, "But in fact, many studies have shown to date the emergence of foreign investment at the founding of the East India Company, which was held in London in 1600 and it is transient national company" (Adel. E Kazim, 2005/21).

Foreign direct investment term has appeared in the writings of Herbert Feis, 1930 for the first time after which about three decades appeared (Portfolio investments) which means (Investment indirectly) as referred to for the first time Mathew Simon, 1967, by referring to foreign investment and the extent of their impact the securities markets, since then foreign investment was classified into two categories (direct investment and Portfolio investment), direct investment is based on the investment in fixed assets, while Portfolio investment it includes government corporate bonds and bank loans at long term. "this classification has been considered best ratings that explain foreign investment, the scientific term FDI commonly abbreviated term in English (Foreign Direct Investment) it has been used for the first time by the Leona Lewis, 1938" (Saleh, 2005/12).

1.9 SOME DEFINITIONS ABOUT CONCEPT OF FOREIGN DIRECT INVESTMENT:

To definition the FDI carefully and precisely we must explain through a set of definitions reflect the views of specialists in this field therefore according to those sources we can classify it as follows:

1.9.1 FOREIGN DIRECT INVESTMENT FROM THE STANDPOINT OF INTERNATIONAL INSTITUTIONS:

- IMF: Defined as an investment company in projects outside the homeland borders, in order to exercise some influence on the operations of these projects, it's named FDI when the investor owns 10% or more of the capital

shares of a business enterprise, that this property was linked to the ability to influence the management of the institution (IMF, 1993/86).

- OCED: Defined as the activity by the investor in order to obtain the permanent benefit and effect allows him to manage a business unit outside his original country (OCES, 1996).
- UNCTAD: Defined as an investment, which involves a long-term relationship reflect the permanent interests, And the ability to administrative control of the parent company (which belongs the company) and the company or productive unit in another country (the receiver country of the investment) whether the investor is an individual or a company or institution And take the form of share ownership equal to or exceeding 10% of the ordinary shares or voting power in the board of directors of local companies or the equivalent in other companies as a separator for the purposes of the FDI (UNCTAD, 2000/15).

1.9.2 FOREIGN DIRECT INVESTMENT FROM THE STANDPOINT OF ECONOMISTS:

Vladimir Lenin, 1916: Vladimir Lenin says about the foreign direct investment: "home countries these emotions range from fear that firms that invest abroad lower domestic wages, destroy local jobs, and erode technology leadership to the belief that firms must invest abroad in order to remain competitive in an increasingly global environment. In recipient countries, some insist that FDI accelerates economic development by bringing new capital and technologies, while others fear the effects of foreign control of local factors and assets and expect multinational enterprises (MNCs) to exploit their size and power to destroy local firms, create economic dependence, and threaten local culture and sovereignty" (Laura, 2009/127-129).

- Gilles Bertin, 1982: Believes that the emerging investment cross-border , as a result of the transfer of investment capital and the various economic resources between the different countries in order to profit-taking and to

maximize the benefits realized as a result of these investments, or any use going on outside for financial resources owned by the country (Bertin, 1982/10).

- Denis Tresen & Jean Bricoull, 1990: They Believe it's those investments owned and managed by foreign investors because of the full ownership of them, or ownership of the share of which ensures the right of management (Tresen & Bricoull, 1990/5).
- Petter Hess & Clark Ross, 1997: They see that it is a creation of new projects in the host countries, or add to the balance of machines and the equipment by foreign investors or foreign investors to buy local companies in the host countries (often 10% or more of the company's assets) (Hess & Ross, 1997).
- Paul Krugman & Maurice Obstfeld, 2006: The flow of international capital to create a company in one country or the expansion of a subsidiary in another country, in this definition they focus on the qualities that characterize foreign investment, it is not only in the transfer of resources but also be in ownership control, so the branch does not have a financial obligation only with parent company but also be part of the organizational structure (Krugman & Obstfeld, 2006/157).
- Abdul Salam Abu Qahif, 2003: FDI it means that the foreign investor directly managing the project that has been invested outside the geographical boundaries of his country, whether productive or service projects, this kind of investment involves a long-term relationship and foreign investor possesses the project in part or in full (Qahif, 2003/15).
- Gregory Mankiw, 2007:
He believes it the way leading to the growth of nations and it's one of the means used by poor countries to learn new techniques and advanced used in developed countries (Mankiw, 2007/561).

From the above we conclude that FDI is a mutual benefit between the two parties, the first called (Home Country), where it owns capital, technology, skills and techniques, ready to face the expected risks and employ them outside the country, in order to achieve certain targets and usually done through MNC, with another called (Host Country), which do not own these factors absolutely or partly, ready to face the expected risks and employ them inside the country, in order to achieve certain targets.

1.10 ADVANTAGES AND DISADVANTAGES OF FOREIGN DIRECT INVESTMENT:

There is no doubt that FDI decision is the result of extensive studies to decision-makers, whether that decision to export or receive to investment. Therefore, the investment decision is not an easy process, it carries with it a lot of advantages and disadvantages. There is section of the critics who have a pessimistic view toward investment they see that FDI just a temporary an injection into the economy and in the long term It will face the risk of economic dependence of the receiving country of FDI, while others believe it's a way for economic transition and guide the path of the economy to advanced levels.

1.10.1 THE MOST IMPORTANT ADVANTAGES OF FOREIGN DIRECT INVESTMENT:

When a particular country opens up to foreign direct investment then allows for this investment flow by opening the border to multinational companies, surely this country will get the newest technological achievements and most sophisticated because these giants have the possibilities and capabilities of enormous in terms of scientific and technological research. Of course, this transfer will be accompanied by the best technological and organizational, administrative and technical skills; here we suggest some positive views:

About FDI and Market Structures, (Blomström, Globerman & Kokko, 1999) they believe: "that Inward FDI could have important indirect impacts on spillover efficiency benefits to the extent that it alters host country market structures in ways that affect those benefits. If FDI inward contributes to host country markets

become more competitive (or more contestable), it would contribute to the faster adoption of new technology by domestic firms. It might also encourage MNCs to introduce new technology sooner and more extensively into their foreign-owned affiliates in order to enable the latter to compete more effectively. More simply, increased competition might encourage a more efficient allocation of resources across industrial sectors and production establishments which, in turn, are manifested by increases in sectoral and economy-wide measures of productivity. About Investments in Human Capital also they see: that technology is embodied not only in machinery, equipment, patent rights and expatriate managers and technicians but also in the human capital of the affiliates' local employees. (Blomström, Globerman & Kokko, 1999/11-12). In turn, the latter may acquire much of their human capital through direct and indirect training received while working for foreign affiliates" (Blomström, 1999/11-12) in case the expansion of the economy S. Allin says: Developing country aims from open the way for FDI in order to contribute in the events of economic expansion, and those objectives are achieved by using a foreign investor local manpower at all levels, including the admins and workers, as well as to reinvest a significant part of the profits realized in the receiver country (Allin, 1974/266) Besides having another ways or channels that host countries can attract modern technological techniques, Such as administrative contracts, licenses, as well as publish research and direct purchase, but direct investment is more appropriate ways to attract technology, especially for some types of industries such as the extractive industry, in addition to enabling the host country, with the help of multinational enterprises, optimization exploitation of the technology.

1.10.2 THE DISADVANTAGES OF FOREIGN DIRECT INVESTMENT:

Each investment has different risks, In terms of its size, location, and field of activity or its geographical range. Generally; talk about risks of Investing in this way is not of interest this study. Therefore we can focus only the most important risks that may the investor faced outside the country and it is divided into two sections:

- Political risks: (Tahir Morsi Attia, 2000) He sees these risks different from one country to another and is of three types: risks affecting the lives and property, risks affecting the operations and the other affecting the financial operations such as balance transfer.

  Usually, foreign investment is exposed to these risks, as a result of the regime change and what has followed from the change in the political and economic trends for the new system, and the risks posed by cases instability, such as riots, and incidents of violence and terrorism. The International Company might as well pay the price worsening relations between her country and the host country (Attia , 2000/138).

- Economic risks:

  Include commercial risks, which are divided into:

  - The risks of return on investment.

  - The competition risks.

  - Import restrictions.

- Financial risks, which are divided into:

  - Prevent the risk of transfer of profits abroad or recover the invested capital.

  - Exchange rate risks.

  - And finally, double taxation on profits transferred.

In addition to the previously mentioned of advantages and disadvantages from FDI inflows, The empirical literature finds mixed evidence on the existence of positive spillover effects of FDI for a host country (Blomstrom and Kokko, 1998).

CHAPTER TWO
LITERATURE REVIEW

2.1 INTRODUCTION:

This chapter consists of two parts: theoretical framework and empirical framework. The theoretical framework gives an insight of macroeconomic theories of FDI and how some of macroeconomic variables behaved with regards to FDI inflows by considering many theories of macroeconomic , while the empirical framework examined researches conducted by different researchers; methods or techniques used, and the findings. The essence is to update literature so as to gives required policies recommendations.

2.2 THEORETICAL LITERATURE REVIEW:

Macro-economic Theories of foreign direct investment:

On the   political stability hand, is considered important factors to motivating and encourages attracting Investments into the country and is considered index to ensure protect the foreign Corporate entity from political risk, such as risks affecting the lives and property, risks affecting the operations and the other affecting the financial operations such as balance transfer as a result of internal political conflicts and terrorism, raise the confidence of foreign investors and ensure to increased investments in the future. In fact we cannot confirm or aver that political stability is one of the most important determinants of FDI or the most influential factor among the other factors such as economic factors, For example in some writings and economic literature such as:

Schollhammer & Nigh, (1984) in other study, they consider that political stability is one of secondary determinants, as is the case in (Schollhammer and Nigh) study in their investigations of the effect of political events on FDI where took a different approach. For them: "FDI is not just influenced by political instability (internal conflict) but it is the result of other factors such as stability of political system of the host country (internal cooperation), and intergovernmental relationships that could be cooperative or conflictive in nature, and the market

size. Schollhammer and Nigh distinguished between German foreign direct investment in developed and less developed countries and utilized Conflict and Peace Data Bank, to measure internal political stability and intergovernmental relationship. Using regression models, they found that German FDI in less developed countries was affected (a) negatively by internal political conflict of the host country, (b) positively by cooperative political development between the host country and the German government and (c) positively by market size of the host country" (Schollhammer & Nigh 1984/18-40).

Another opinion from (Fatehi-Sedeh & Safizadeh, 1989/4-13) "a multinational corporation may continue to invest in a politically unstable country because the expected return on investment, or the incentives offered by the host government, justifies accepting the risk involved"

Green & Charles H, (1972) in their study have "discovered a significant relationship between overall investment profitability and political instability".

One of the first theoretical approaches to explain FDI is the neoclassical growth theory.

Solow, (1956) attempted to express a growth model into a simple production function and to explore key variables that could provide steady growth rates. In his model, He referred that one of the variables that determines the FDI is the growth rates (Solow, R.M. 1956/65–94).

On the other hand, within the endogenous growth theory, FDI flows may contribute either directly or indirectly to the economic growth of an economy.

Wang, (1990) believes that FDI activity has direct positive impacts on host-country, by stepping up production and transferring knowledge to local suppliers and indirect effects by upgrading the quality of their workforce through the transfer of skills (Wang, 1990/255 – 271)

Balasubramanyam et al, (1996) for the less developed countries FDI is considered the major source of economic growth. (Balasubramanyam , Salisu and Sapsford 1996/ 92–105)

Feenstra & Markusen, (1994) in other studies reported that FDI affects economic growth in host-countries through new inputs, subsequent spillovers to domestic firms and new technologies. (Feenstra & Markusen, 1994/429–447)

While Krugman, (1979) mentioned the impacts through information technology.

De mello & Sinclair, (1995), FDI can be expected as reasons which promote growth in the long run; endogenous growth theory Romer, (1990);

Barro & Sala-i-Martin, (1995) in other literature, the models provide important insight into the mechanics of the decision-making behavior in MNEs (multi-national enterprises) but treat exchange rate fluctuation as exogenous and isolating them from macroeconomic shocks that at the same time affect demand. Consequently theoretical arguments based on these models are divided as to whether exchange rate uncertainty will increase or decrease FDI (Barro & Sala-i-Martin, 1995/2–15).

Goldberg & Kolstad, (1994 -1995), Cushman, (1985 - 1988), in writings proposing that exchange rate variations could promote investment abroad assert the long-standing result in trade theory that cross-border investment is a substitute for trade when tariffs or other barriers prevent the free flow of goods. (Mundell, 1957/321-335), provided the first mathematical proof of this result. (Goldberg & Kolstad, 1995/855-873), (Cushman, 1985/297–307).

(Schneider & Fery, 1985/167-175), and numerous studies provided proofs that uncertainty case of exchange rate in fact may function as trade barriers, implying by default that it should increase FDI. Assuming that exchange rate fluctuations are outside the control of the investing company, multinational firms can take advantage by shifting production to the countries where the value of the local currency makes input costs look cheapest, ceteris paribus. The inflation rates on other hand, had a negative impact on FDI flows, In this regard (Fery & Schneider) pointed out in a study them for 45 developing countries, existence of a negative relationship between high rates of inflation and the level of FDI, because it represents an indication of the weakness of the economy in the host-country, which represent risks to investors as a result of undesirable policies

As explained by Nunnenkamp, (1997) in their study of the foreign direct investment in Latin America that countries that have managed to prevent high inflation rates of more than 20% since 1984 in (Chile, Colombia, Costa Rica), has been successful in attracting foreign direct investment.

In another empirical study from: Dalal. Bin Smeena, (2013) presented a paper entitled, Analyzing the impact of economic policies on the development of foreign direct investment in the light of the economic reforms, Algeria's case study. The study focused on the role of the GDP, inflation rates, exchange rate, foreign debt, current account, the study results showed that these variables are important factors in determining FDI inflows to Algeria during the period (1989-2011), where confirmed that "current account can impact on FDI inflows through trade liberalization, which in turn leads to improved exchange of trade, which will reflect positively on the improved current account situation and the result is following an expansionary policy, that will stimulate economic activity and attract more FDI" (Dalal, 2013/92).

Another study conducted by the Husain, 2009 & (Shahzad et al, 2012/199-213). Political risks largely depend on political stability and good governance of the government, in their study discussed that the political stability enhances the probability of attracting more FDI inflows into the developing countries. Pakistan was continually suffering from the instability of the political system, thus, will adversely affect the level of foreign and domestic investment in the country.

Agiomirgianakis study et al. (2006), Walsh & Yu, (2010). According to them: Human capital has been recognized in numerous studies as a means of attract FDI, that the highly skilled worker suggests a more productive society and a more desirable destination for investment. In addition, workers with better and higher levels of education are able to adapt to the fluctuations that take place in economies and carry out more complex tasks. However, some studies do not find this variable statistically significant. (Agiomirgianaki, & Asteriou, 2006/3)

2.3 EMPIRICAL LITERATURE REVIEW:

Dunning, (1970), wrote in the determinants of US direct investment in Europe, he concluded that market size to be the most influential factor.

(Loree & Guisinger, 1995) studied the determinants of FDI in the United States and explain that factors related to host-country were significant in developed countries, an important factors in all countries was infrastructure (Loree & Guisinger, 1995/281–299).

Nair-Reichert & Weinhold, (2001) studied a causality test between FDI and product growth, was based on (panel-data) in 24 developing countries during period 1971-1985. The main conclusion here was that the relation between FDI efficiency and trade openness was positively influenced, but between FDI and product growth was strongly heterogeneous (Nair-Reichert & Weinhold, 2001/153 –171).

Amadi, (2002) foreign direct investment is the distinctive feature of multinational enterprise. It is not simply an international transfer of capital but rather the extension of enterprise from its home country.

Root, (1984) the extension of enterprise involves flows of capital technology and entrepreneurial skills to the host economy where they are combined with local factors in the production of goods for the local and export market.

According to Iyoha, (2002), FDI inflows are by large investments by transnational corporations in (foreign host-countries) for the purpose of controlling assets and managing production activities in those countries. There are several variants of FDI in the literature, wholly-owned enterprise, joint ventures and special contracts arrangement such as licenses, franchises, management contracts, consultancy, Turkey contracts, sub-contracting, quality control and standard services among others.

In empirical evidence Cheng & Kwan, (2000) on governmental capabilities and resources found that governments are major source for economic restructuring and location attraction of inward FDI. Realism examples for example, when the Chinese government following an open door policy in 1993, it influenced

on China to become the largest recipient of foreign direct investment in the world followed by US. (Cheng, L.H. and Kwan, Y. K. 2000/379-400)

According to Benassy-Quere et al, (2001) confirmed in his study that there an impacts of exchange rate on FDI flows, this impact is depends on the type of investment (vertical foreign direct investment or horizontal foreign direct investment). In the case of vertical foreign direct investment, an appreciation of a local currency has a negative effect on foreign direct investment inflows because items produced locally are becoming expensive abroad. The depreciation of a local currency, on the other hand, has a positive effect on foreign direct investment inflows because the products are less expensive. In the case of horizontal foreign direct investment, a depreciation of the host country's exchange rate will have a positive impact on the flows it receives through reduced cost of capital; and the appreciation of the local currency will also increase the flows of foreign direct investment because the local consumers will have a higher purchasing power. (Benassy-Quere, Fontagne and Lahreche-Revil, 200/178–198)

Nunnenkamp & Spatz, (2002), examined a sample of 28 developing countries during the 1987 to 2000 period and found significant spearman correlations between foreign direct investment flows and, risk factors, per capita GDP, years of schooling, complementary production factors, cost factors, and foreign trade restrictions, administrative bottlenecks. GDP growth, firm entry restrictions, post-entry restrictions, Population, and technology regulation all proved to be non-significant. However, when regressions were performed separately for the non-traditional factors, in which traditional factors were controlled for, only factor costs produced significant results and, even so, only for the 1997 to 2000 period. (Nunnenkamp & Spatz, 2002/1-34),

Anyanwus, (1998) study of the economic determinant of foreign direct investment in Nigeria, the study shows that the role of domestic market size positive in determining foreign direct investment inflows into the country. This study noted that the abrogation of the indigenization policy in 1995 significantly encouraged the flow of foreign direct investment into the country and that more

effort is required in raising the nation's economic growth so as to attract more foreign direct investment.

Iyoha, (2001) He wrote about effects of uncertainty and macroeconomic instability, external debt and economic size on foreign private investment inflows. The results of the study appeared that market size attracts foreign direct investment whereas inflation discourages it. The study confirms also that unsuitable macroeconomic policy has a negative effect on foreign investment inflows into the country.

Barthel et al, (2008) in their study of the characteristics and determinants of foreign direct investment in Ghana for factors influencing foreign firm destination. They particularly based their studies on data which obtained from the World Bank 2007 enterprise service (616 firms were surveyed) and 54 of multinational enterprises were selected operating in Ghana. From their study findings, included the important factors affecting the choice Ghana as an investment destination is (the macroeconomic environment, political factors), and the most important macroeconomic and political factors impacting on investment today are political stability with 33% of the responses, followed by economic growth performance (20.1%) and exchange rate regime (16.5%). The potential for growth of the Ghanaian market was the most important variable regarding the extent to which the market acts as a pull for foreign investment (42%). With the investment plan for the medium term, 81% of the survey firms said they will increase their investment over the market three or five year's period. A further 11% of the firms said they were unsure about which direction their investment will go over the next three to five years. (Barthel, Busse and Osei, 2008/2-15)

Dunning, (1993) outlines four motives for a firm to engage in this type of investment: access to markets, access to resources, acquisition of strategic assets and efficiency gains. Policy shifts by governments could impact the efficiency gains companies might experience, and have an effect on the ability of companies to access markets. This in turn motivates the literature on whether country-level factors and conditions can also lead to stronger flows. Whether macroeconomic

and other national-level factors can account for cross-country differences in FDI inflows is the focus of the rest of this paper.

Froot & Stein (1991) gave evidence of the relationship: In the case of the weakness of the currency of the host country tends to increase inward FDI within an imperfect capital market model as depreciation makes host country assets less expensive relative to assets in the home country. (Froot & Stein, 1991/*1191–1217)*

About political and macroeconomic stability there are surveys of investors have indicated that these two factors are one of the key concerns of potential foreign investors. However, empirical results are somewhat uncertain.

Ang (2007) presented a paper entitled: Determinants of foreign direct investment in Malaysia, Monash University, and department of Economics through the use of annual time series data for the period 1960–2005, this paper examines the determinants of FDI for Malaysia to inform analytical and policy debates. In this paper reached results that the real GDP has a significant positive impact on FDI inflows. There is evidence that growth rate of GDP exerts a small positive impact on inward FDI. From a policy point of view, the results suggest that increases in the level of financial development, trade openness and infrastructure development promote FDI. On the other hand, higher statutory corporate tax rate and appreciation of the real exchange rate appear to discourage FDI inflows. Interestingly, the results also seem to suggest that FDI inflows go up when increasing the uncertainty in the macroeconomic. (Ang. James B, 2008/185–189)

According to Faik Bilgili, (2012) study's under the title "The determinants of FDI in Turkey: A Markov Regime-Switching approach" Summarizes that the Turkish FDI equation has significant structural changes at the level and trend, also shows significant shifts in coefficient of explanatory variables. These explanatory variables are Turkish GDP Growth, the Electricity Price Growth, Labor Cost, Coal Cooking , the growth in average prices of High Sulphur Fuel Oil, Steam Coal and Natural Gas, Export Growth, Import Growth, Discount Rate and Country Risk Indexes for Turkey, US and EU, respectively, within the time interval from 1988 first quarter to 2010 second quarter.

Levis, (1979) in another study that has used regression analysis which based on the data of 25 developing nations, he concluded that economic considerations are the prime determinant of the flow of foreign investment, whereas political factors are the second order determinants. (Levis, M. Does, 1979/59-68)

In contrast to the studies by Green, (1972), Green & Cunningham, (1975) a study by Kobrin, (1978) it supported the presence of a negative relationship between political instability and FDI. After controlling for the impact of economic variables on the flow of foreign investment, Kobrin used the data for 48 nations to see whether the number of U.S. manufacturing subsidiaries established in each country over the years 1964-1967 can be interpreted by two levels (high and low) of the severest form of political conflict labeled "conspiracy". The statistical results supported his proposition that the relationship between political stability and FDI is more likely to be conspicuous when there is an economically rooted conflict and the government has sufficient administrative capability to indirectly respond to it. (Kobrin, Stephen J, 1978/113-122)

In empirical study carried out by Sherif & Dalia, (2016); Regression with time series data on stationary and dynamic variables was done using random effect panel data analysis. The study included some of the macroeconomic variables such as (market openness, human capital, political stability, Availability of resources, infrastructure) as delimiters of the flow of foreign direct investment. The results were that human capital, infrastructure, lagged FDI and market openness are the significant determinants of FDI in the MENA region. The results suggest that they obtained that FDI for MENA is primarily market based. Hence, MENA region nations should strive to utilize these determinants to improve the competitive environment and attract FDI flow (Sherif & Dalia, 2016/30-38).

In a related study conducted by Marta Bengoa & Blanca Sanchez-Robles, (2002) Titled "Foreign direct investment, economic freedom and growth: new evidence from Latin America". This study revealed the interplay between economic freedom, foreign direct investment (FDI) and economic growth using panel-data analysis for a sample of 18 Latin American countries during the period 1970–1999.

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They find that economic freedom in the host country is a positive determinant of FDI inflows. The other results also suggest that foreign direct investment is positively correlated with economic growth in the host countries. However the host countries require adequate human capital, economic stability and liberalized markets to benefit from long-term capital flows.

2.4 RESULT OF THE LITERATURE:

From the above we conclude that most of the studies used the Macro-economic variables, was relevant to this study, such as (political stability, balance of payments, economic growth, exchange rate and inflation rates), While in other studies depended on different variables such as trade openness, freedom of economy, infrastructure, government incentives, tax policies, human capital, available resources, technology, level of education, skills and experience, which considered serves as determinants of the FDI. In addition to all this in other studies have considered that the market size one of the most important factors that effect on FDI inflows.

Through recent studies that presented in this chapter, we can find that there are other factors related to the hosting country, such as laws and regulations, banking system and the other related to the home country, like expected return on capital and risks. The main goal of this chapter is that the general idea of this study and previous literature are the same which is to find a causal relationship between macroeconomic variables and foreign direct investment flows. But this study is different in terms of selecting the model, the tests that have been applied and the time period.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 INTRODUCTION:

The recent developments in econometrics, especially in the field of time-series analysis has focused on the statistical properties much, After the publication of (Nelson and Plosser, 1982) in her paper, which confirmed that most of the time series of finance of the USA has a (Unit Root) which means that most of the time-series is Non-static, Accordingly, the application of traditional methods on a non-static data statistically, leading to a spurious regression estimate and unreliable cannot rely on its results (Akram.S. Yousif, 2016/91) from this point the panel-data become a more famous and more widely used, and this will be explained in detail later in this chapter, Since this study applies panel-data model, which also contains a time-series and cross-section at the same time, it is very important to ensure that these time series are static and does not suffer from unit root.

In order to avoid this confusion the current study will apply unit root tests such as ADF (Augmented Dickey-Fuller) test, and PP (Philips-Perron) test; As well as this chapter contains the most important tests that are used in the panel-data model, to obtain accurate and reliable results, and they are free of common statistical flaws, such as Spurious Regression, Heteroscedasticity, Autocorrelation, and other statistic problems, other tests also like Pooled Regression Model (PM), Fixed Effects Model (FEM), Random Effects Model (REM), Hausman test, and diagnostic test.

3.2 DATA:

In this study each data was chosen for these countries accurately from the available sources and from official international sources; the data was a panel - data that consist of time series for 15 years 2000-2014, For (4) countries and Includes (60) observations.

Variables such as FDI and current account it was a percent of GDP and exchange rate were in US dollars while economic growth and political stability is in rate. Natural logarithm of dollar exchange rate was taken in order to convert them into rates so as to be uniform with remaining other variables, for valid, efficient and reliable analysis of the data. In this study, it has been selected to be the time periods for the years 2000-2014 as a sensitive period in terms of political stability and the global financial crisis which faced by most of the world country and changed the path of world economy., these data were obtained from World Development Indicators (WDI) online database published by World Bank in the year 2015; And some of the data collected from the site of the global economy; The global economy website is an open educational resource on the world economy. It is used by faculty and students at 504 universities around the world, researchers, business people, journalists, and others. The website offers interactive data tools for over 200 countries with data from The World Bank, the United Nations, the International Monetary Fund, the U.S. Energy Information Administration, UNESCO; the World Economic Forum, OECD.org © 2016 Organization for Economic Co-operation and Development, bis.org Bank for International Settlements and other sources.

All these data are official data and reliable been carefully selected from international sources, the data used in this research has been under discussion before starting work and after the approval; the data it was analyzed using the program STATA 9.2, EViews 8.1 to avoid problems as it happens with Time series or Cross-section such as data loss or occurrence Heterogeneity special variation we chosen (Panel-Data) from (15) years for the four (4) countries under study of period 2000 to 2014, especially this period was unstable in terms of political and

economic stability and this has a negative impact on the macroeconomic indicators generally, on the other hand its influence on decision of FDI for the both side.

3.3 DEFINITION OF VARIABLES:

- **FOREIGN DIRECT INVESTMENT:**

foreign direct investment (FDI) is net inflows of investment to host countries aims to acquire administrative power in the economic institutions, And to search for new markets to export of surplus products for domestic demand, flow of foreign capital into the country with technology to reinvestment of profits, And other long-term capital, and capital in the short term, this series shows net inflows (new investment inflows less disinvestment) and divided by the gross domestic product.

FIGURE2. The development of FDI, net inflows, during the period (2000-2014) in Malaysia=1, Singapore=2, Saudi Arabia =3, Turkey=4 % of GDP
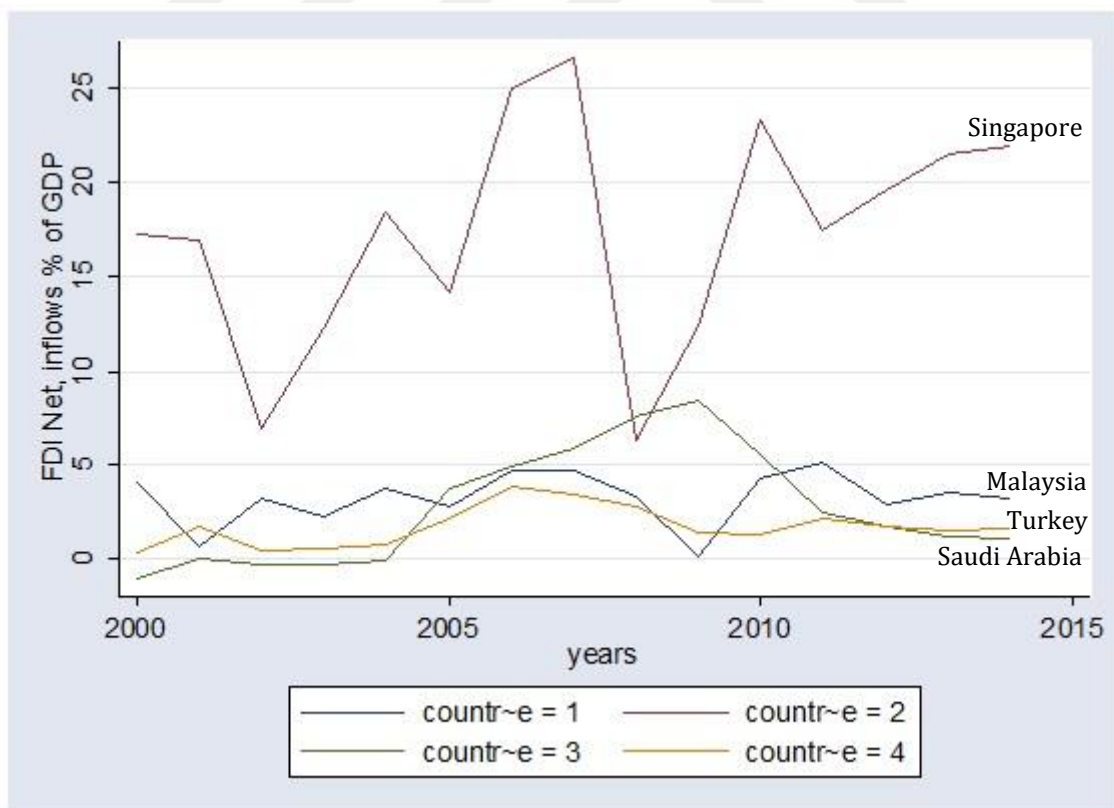
Source: prepared by the researcher based on the data table, outputs of STATA.9.2 program

From figure1 above it shows that the development that has happened in the volume of FDI inflows in Singapore since the beginning of (2000), and notes that the proportion of foreign direct investment flows of GDP reached (17.2), while dropped to their lowest level in a year (2008) to (6.32) this sharp decline likely it was from the effects of the global financial crisis, where the industrial sector has suffered a sharp decline, also it is worth mentioning that Singapore's economy returned quickly during the period (2006) and (2007) the has achieved high numbers reached to (24.98) and (26.52) through the fight against corruption, and stimulate the industrial sector.

As for Malaysian curve's shows that the foreign direct investment inflows reached (4.04) of GDP during the period (2000) and continued stability until the end of the year (2007), reaching average (5.07) In (2009) collapsed foreign direct investment rates in Malaysia where he was (0.06) from the effects of the global financial crisis, while in the year (2010) and (2011) rapid developments in Malaysian economy achieved to score (4.27) and (5.07) % of GDP.

For the Saudi economy at the beginning of the year 2000, low levels of foreign direct investment inflows reached a level-1, where in 2000 Saudi Arabia was in the beginning of the trend of towards foreign direct investment, and Saudi Arabia became in 2008 and 2009, one of the largest recipient of FDI inflows between of Arab countries, where foreign direct investment inflows become about 7.59 and 8.5. With the development of Saudi Arabia's oil sector.

from the figure 1 it shows that the development that has occurred in the volume of FDI inflows in Turkey since the beginning (2000), and notes that FDI inflows percentage of GDP amounted to (0.37) as a result of political instability, while rose to its highest level during the period (2006) and (2007) where achieved high numbers reached (3.80) and (3.41). This rise is likely that it was outcome of the effects of relative political stability and improving Turkey's relations with the European countries seeking to join the European Union.

- **POLITICAL STABILITY:**

"The index is a composite measure as it is based on several other indexes from multiple sources including the Economist Intelligence Unit, the World Economic Forum and the Political Risk Services, among others. The underlying indexes reflect the likelihood of a disorderly transfer of government power, armed conflict, violent demonstrations, social unrest, international tensions, terrorism, as well as ethnic, religious or regional conflicts. The methodology of the overall index is kept consistent so the numbers are comparable over time" (The Global Economy, 2016).

FIGURE3. The development of political stability over all indicators, during the period (2000-2014) in Malaysia=1, Singapore=2, Saudi Arabia =3, Turkey=4
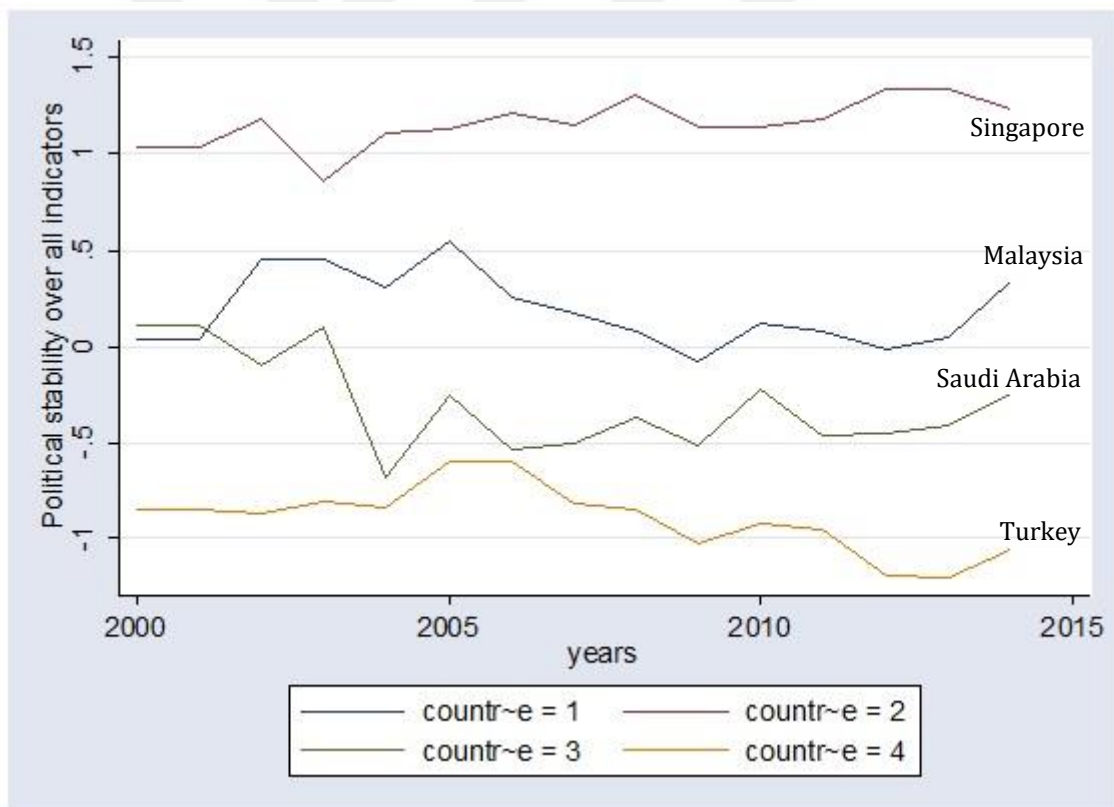
Source: prepared by the researcher based on the data table, outputs of STATA.9.2 program

Figure3. above shows that the Singapore has a higher level of political stability overall indicators, where reached about (1.04) in (2000), while it decreases its lowest level after 3 years exactly in 2003 it reached to (0.86), after this year it start

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to become higher but in an oscillatory way until it reached to (1.34) it's higher level in (2012-2013) respectively, For Malaysia, its start with the stability level in (2000) it record (0.04) and in (2014) it record (0.34), and as we see in the figure, the lowest level is recorded in the year (2009) while highest level recorded (0.55) in (2005), in the other two countries (Saudi Arabia, Turkey) they record a very bad levels, the highest level for Saudi Arabia is (0.11) in (2000-2001), while for turkey is (-0.6) in (2005-2006).

- **BALANCE OF PAYMENT (BOP):**

(BOP) in this study represent current account % of GDP: Current account balance is the sum of net exports of goods and services, net primary income, and net secondary income.

FIGURE4. The development of current account, indicators, during the period (2000-2014) in Malaysia=1, Singapore=2, Saudi Arabia =3, Turkey=4 % of GDP

Source: prepared by the researcher based on the data table, outputs of STATA.9.2 program

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Figure 4. above shows that the Singapore has recorded a higher level of current account, followed by Saudi Arabia, Malaysia, and Turkey respectively.

- **ECONOMIC GROWTH (GDP GROWTH ANNUAL %):**

Economic growth here represent annual percentage growth rate of GDP at market prices based on constant local currency, Aggregates are based on constant 2005 U.S. dollars, or the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

FIGURE5. The development of GDP growth annual, indicators, during the period (2000-2014) in Malaysia=1, Singapore=2, Saudi Arabia =3, Turkey=4

Source: prepared by the researcher based on the data table, outputs of STATA.9.2 program

Figure5.. Above shows that Singapore has recorded a higher level of economic growth, followed by Saudi Arabia, Malaysia and Turkey respectively.

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- **EXCHANGE RATE:**

Dollar Exchange rate Is the amount of the difference between the national currency and the dollar at the exchange, when the increased cost of the dollar in the financial markets affect the prices of goods and services, leading to a decline in the purchasing power of individuals within a country, since exchange rates are constantly changing, which affects the decisions of investors, governments try survival rates exchange rate stability in order to attract investors and increase confidence in the national economy.

FIGURE6. The development of Dollar exchange rate, indicators, during the period (2000-2014) in Malaysia=1, Singapore=2, Saudi Arabia =3, Turkey=4

Source: prepared by the researcher based on the data table, outputs of STATA.9.2 program

Figure6. Above shows that the Saudi Arabia has recorded a higher level of Doller exchange rate, followed by, Malaysia, Turkey and Singapore respectively.

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- **INFLATION:**

Inflation, as measured by the consumer price index, reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services; high inflation rates mean decrease purchasing power of the consumer of goods and services, and subsequently decrease the value of the local currency; usually measured from six months to one year that may be fixed or changed at specified periods, such as yearly, And generally used (Laspeyres formula).

FIGURE7. The development of Inflation, indicators, during the period (2000-2014) in Malaysia=1, Singapore=2, Saudi Arabia =3, Turkey=4
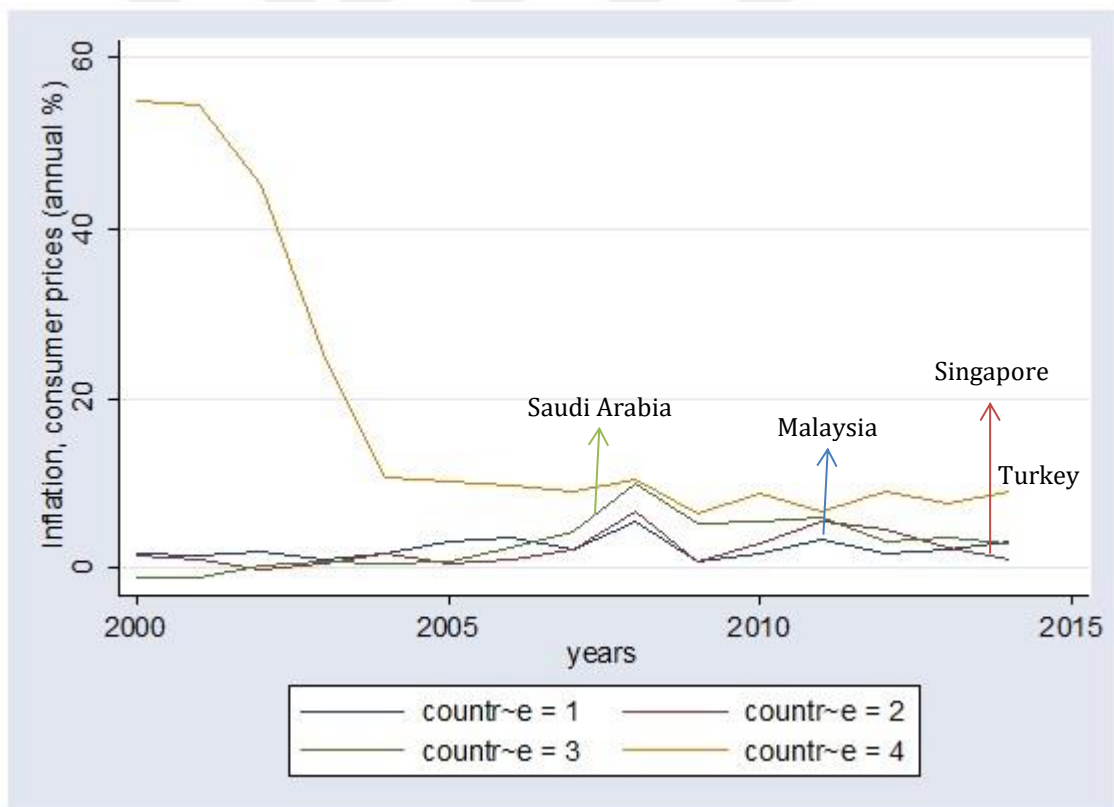
Source: prepared by the researcher based on the data table, outputs of STATA.9.2 program
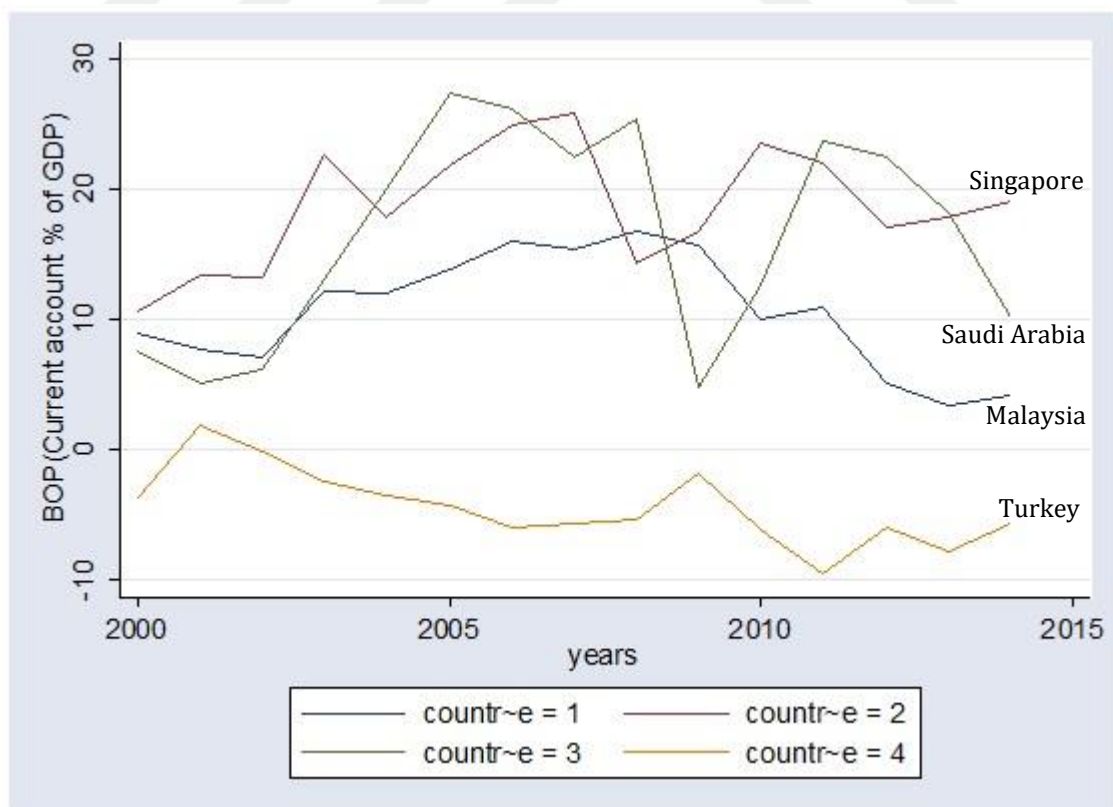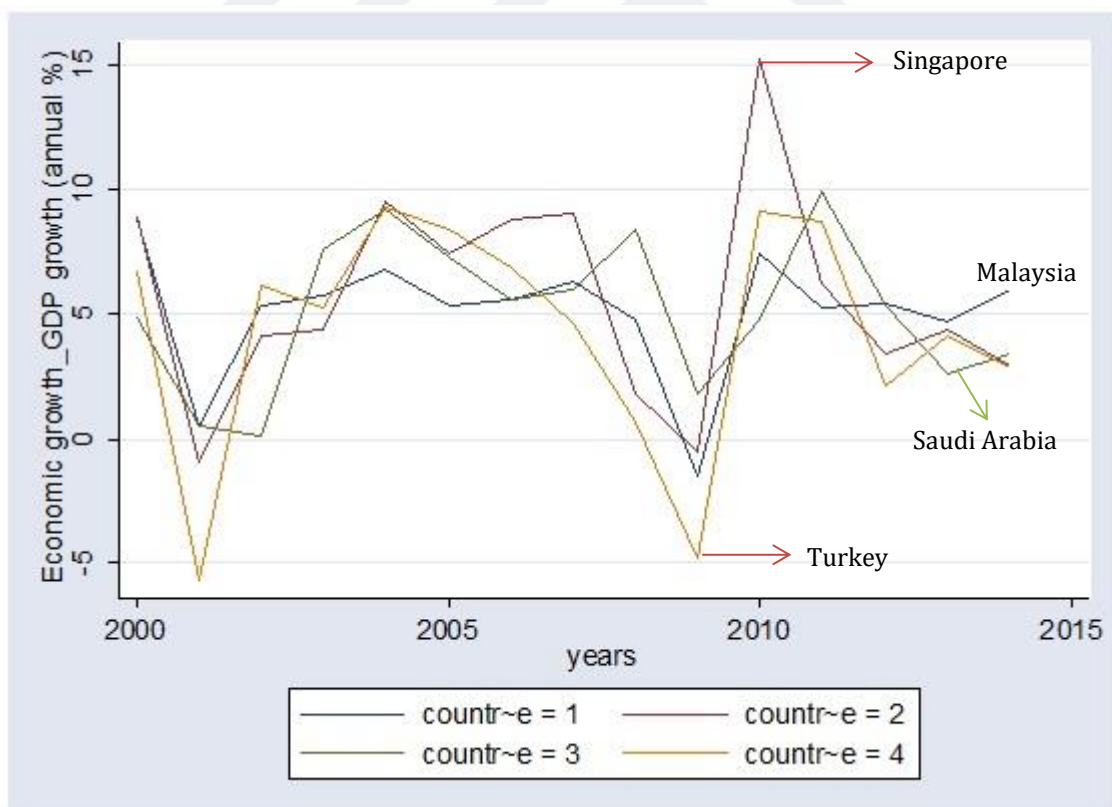
Figure7. Above shows that Turkey has recorded a higher level of inflation rate, followed by Saudi Arabia, Malaysia and Singapore respectively.

- **ERROR TERM:**

In regression analysis, error term must be included. The idea behind this is usually there are variables not included in the model or result of errors in estimation, And these errors in estimation is Error term.

- **MODELS:**

The unit root test stationary through (Augmented Dickey-Fuller - ADF), (The Phillips-Perron Test - PP) tests, appropriate regression models use; fixed effects, random effects, Hausman test, and diagnostic test.

3.4 PANEL-DATA:

Many of studies and researches depended on developed methods to get results which have high levels of active and precision. The statistics and its branches have a great effect to build models and analysis through it to reach right decisions. Regression analysis is interested to build mathematical relationship between "dependent variable" and "independent variable", this relationship is linear installation and called "regression equation" in current decade, the panel data model acquired a great interesting especially in economic and medical. "This data recognize as a cross-section measuring in time series" (Algamal, 2012/266-285) "Which the Cross-section include the states cities, and institutions" (Gujarati, 2012/268). The main benefit from using panel-data is to increase the precision in prediction by increasing the number of observations through merge between cross-section and time series. Many researchers studied the panel data model, some of them interested to study properties of panel data model mathematically such as (Bramati & Croux, 2007/1-19) , (Dustmann & Engarcia, 2007/263-293) , (Sun, 2010/271-298) , (Lee & Yu, 2010/165-185), (Baltagi et al, 2010) and some of them interested to apply these models in their studies such as (Mikhed, V. and Zemcik, 2009/366-386) , (Chuang &Wang, 2009/941-949), (El-Gamal & Inanoghlu, 2005/641-664),   (Kai & Qin, 2011/819-822), (Lukas & Jan, 2011/23-38). The models that use (panel-data) has many advantages more than if used time-series

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alone or only cross-section; As clarified by the researcher (Baltagi, 2005/122-124), As follows:

- Control in special Heteroscedasticity which appears in the case of cross-section data or time-series data.
- Panel-data gives better efficiency with increase in the degrees of freedom and less multicollinearity between variables, more of informational content when use time-series or cross-section.

When cross-section measured for the same time periods in panel-data then panel-data called (Balanced Panel-Data), but If not measured on the same time periods then panel-data called (Unbalanced Panel-Data), From here the panel-data models comes in three main forms:

1- Pooled Regression Model (PM)
2- Fixed Effects Model (FEM)
3- Random Effects Model (REM)

Suppose we have (N) of Views in cross-section measured in (T) of time periods; in this case the panel-data model writes as follows:

$$y_{it} = \beta_{o(i)} + \sum_{j=1}^{k} \beta_j X_{j(it)} + \varepsilon_{it} \qquad , i=1,2.....,N \ t=1,2.....,T \ \text{.......(1)}$$

Where: y_{it} is the dependent variable value in the observation (i) in the time period (t), $\beta_{o(i)}$ is the value of the intersection point in the observation (i), β_j is the value of the slope of the regression line, $X_{j(it)}$ is the independent variable value (j) in the observation (i) in the time period (t), ε_{it} is the error value in observation (i) in the time period (t), It is worth to mentioning here that (i) is means number of countries under study (Malaysia- Singapore- Saudi Arabia -Turkey).

3.5 THE (UNIT ROOT) STATIONARITY TEST:

Unit root test is used to find out the integration degree in time-series of economic variables under study to see if it is stable or not. The most contemporary methods in determining the stability of the data is a unit root tests, and its idea depend on the following equation:

$$y_t = y_{t-1} + \varepsilon_t \qquad \text{.......(2)}$$

Where:

y_t : the variable at time (t),

ε_t: disorder standard which is characterized by white noise, with mean equal to zero (μ)=0, Cov =(ε_t)=0, and Var=(σ^2=1).

When (P=1) statistically acceptable, it refers to instability case, and the data suffers from (unit root), therefore we must processing each data which in instability case, by taking differences, and processing the (y_t), if it's in instability case, by taking differences of degree (1st d, 2nd d)[1] to make it stationary, Therefore, we say about The time-series (integrated) from degree (d) and we mentioned symbol $y_t \sim$ I(d). (*Abdul Razak. Kanaan A.* & Al-Jubouri, 2012/153).

To find out the (Unit Root) we can use two tests:

- Augmented Dickey – Fuller (ADF) test.
- The Philips-Perron test (PP).

3.5.1 AUGMENTED DICKEY – FULLER (ADF) TEST:

(Jarque. Carlos M. & Bera, 1980/255-259), (Ljung & Box, 1978/297-303), (Enders & Wiley, 1995/86-87) & (Shapiro, S. S. & Wilk, M. B, 1965/591-611). The distribution of test Dickey-Fuller Expanded based on the assumptions that the random error term is independent statistically and includes a constant variance. So when you use a method of Dickey-Fuller expanded, we must make sure that the error term is unlinked and it includes a constant variance. The ADF's equation after the addition of slowing the values of the dependent variable:

$$\Delta y_t = \beta y_{t-1} + \sum_{j=1}^{k} \beta_j \, \Delta y_{t-1} + \varepsilon_t \qquad \text{....... (3)}$$

This test basically depends on estimating the following models:

A) Without Constant and Trend:

$$\Delta y_t = (\rho - 1)y_{t-1} + \sum_{j=1}^{k} \rho_j \, \Delta y_{t-1} + \varepsilon_t \qquad \text{....... (4)}$$

B) Without Trend:

$$\Delta y_t = \alpha + (\rho - 1)y_{t-1} + \sum_{j=1}^{k} \rho_j \, \Delta y_{t-1} + \varepsilon_t \qquad \text{....... (5)}$$

---

(1) (1st d) means: the data integrated when taking the first-difference level, (2nd d) means: the data integrated when taking the second -difference level. I(d) means: the data (integrated) from the degree (d), with significant at level (5%).

C) With Constant and Trend:

$$\Delta y_t = \alpha + \beta T + (\rho - 1)y_{t-1} + \sum_{j=1}^{k} \rho_j \Delta y_{t-1} + \varepsilon_t \qquad \text{....... (6)}$$

Where:

∗ Δ : is the first difference operator

∗ α : is a constant

∗ T : is a Trend Time

∗ K : is a Slowdown period

In sum, the Augmented Dicky-Fuller Test basing on the following hypotheses:

∗ H_o: $p=1$

∗ H_1: $p<0$

Where:

∗ H_o: is the null hypothesis (i.e. y_t has a Unit Root).

∗ H_1: is the alternate hypothesis (i.e. y_t does not have a Unit Root).

3.5.2 THE PHILIPS-PERRON TEST (PP):

Phillips and Perron 1988 have developed and generalization of the Dickey-Fuller Expanded method, where they allowed the existence of a autocorrelation in error term, and Phillips-Perron method is a modification of a Dickey Fuller test which takes into account the restrictions less on error term, where permitted the random error term to be non-independent in a few, with homogeneous distribution. This test is based on the account (unit root) first and then statistical value is converted to eliminate the effects of autocorrelation on the probability distribution of the statistical test Perron, 1988, p 335 this test is conducted in four stages (Salami. Ahmed & Sheik, 2013/13)

1- Estimate by OLS of the three models to test Dickey – Fuller With an account Statistics.

2- Estimate the short-term variance $\qquad \sigma^2 = \frac{1}{n} \sum_{t=1}^{n} e_t^2 \qquad \text{....... (7)}$

3- Estimate correlation coefficient (Su^2) which is called long-term variance extracted through common variances of residuals previous models, where:

$$Su^2 = \frac{1}{n} \sum_{t=1}^{n} e_t^2 + 2 \sum_{i=1}^{L} (1 - \frac{i}{L+1}) \frac{1}{n} \sum_{t=i+1}^{n} e_t e_{t-1} \qquad \text{....... (8)}$$

In order to estimate the variance it is necessary to find the number of delays (L) estimated in terms of observation (n).

4- Statistic account Phillips Peron t* $=\sqrt{K}\ \dfrac{P-1}{\sigma} + \dfrac{n(K-1)\sigma}{\sqrt{K}}$ .... (9)

Where: $K=\dfrac{\sigma^2}{Su^2}$ .... (10)

Phillips Perron's test, is used the same formulas and values tabular, which takes in test Dickey – Fuller, where the first formula takes without constant and time trend, the second without trend time, by assuming that the average time-series not equal zero and the third with constant and trend time, If (t) calculated is greater than the (t) Tabulated it means that the time-series is stable.

3.6 POOLED OLS REGRESSION MODEL:

This model is one of the simplest models in panel-data, where all parameters $(\beta_{0(i)}, \beta_j)$ are constant (reject any effect of time). When rewrite the model in the equation (1) we will get Pooled Regression Model OLS as in following formula:

$y_{it} = \beta_0 + \sum_{j=1}^{k} \beta_j X_{j(it)} + \varepsilon_{it}$, i=1,2.....,N t=1,2.....,T ....(11)

Where Var(ε_{it})=$\sigma\varepsilon^2$ and E(ε_{it})=0 . Using ordinary least squares method to estimate model parameters in the equation (2) (Greene, W., H, 2012) after rearranging the values of the dependent variable and independent variable, starting from the first cross-sectional data set, with number of observations and by amount of (N*T).

3.7 FIXED EFFECT MODEL:

In the fixed effects model the target is knowledge of the behavior of each data set, separately by making parameter of the section β_0 varying from set to other, with the survival of slope coefficients β_j constant of each data set (Which means we will deal with Heteroscedasticity case, between sets), Accordingly; the fixed effects model will give the following formula:

$\mathbf{y}_{it} = \beta_{0(i)} + \sum_{j=1}^{k} \beta_j X_{j(it)} + \varepsilon_{it}$, i=1,2.....,N t=1,2.....,T ....(12)

Whereas Var(ε_{it})=$\sigma \varepsilon 2$ and E(ε_{it})=0 . The fixed effects concept means, that parameter for each cross-section do not change over time (time invariant), but the only change happen in data set (Gujarati, 2003). For the purpose of estimating the parameters of model in the equation (3), and allow the parameter of βo to change between cross-sections, usually use Dummy Variables its value (N-1) to avoid the perfect multicollinearity (Greene, 2012), Then use OLS regression. The fixed effects model called (Least Squares Dummy Variable Model). After adding dummy variables D to the equation (3), the model becomes as follows:

$$y_{it} = \alpha 1 + \sum_{d=2}^{N} \alpha \, dDd + \sum_{j=1}^{k} \beta j \, Xj_{(it)} + \varepsilon_{it} \qquad , i=1,2.....,N \ t=1,2.....,T \ ....(13)$$

Where an amount ($\alpha 1 + \sum_{d=2}^{N} \alpha dDd$) is a change in cross-sections of part βo

And the model also can be written in equation (4) after deleting α1 as follows (Gujarati, 2003), (Greene, 2012):

$$y_{it} = \sum_{d=1}^{N} \alpha \, dDd + \sum_{j=1}^{k} \beta j \, Xj_{(it)} + \varepsilon_{it} \qquad , i=1,2.....,N \ t=1,2.....,T \ ....(14)$$

3.8 RANDOM EFFECT MODEL:

In the fixed effects model the error term is ε_{it} have a natural distribution with average equal to Zero, and variance equal to $\sigma\varepsilon^2$, In order to be parameters of fixed effects model correct and unbiased, usually it imposes that the error variance is constant (Homogeneous) for all cross-section data, and there is no autocorrelation during the time between data set (cross-section data) in the specific time. Random effects model suitable in the case of a malfunction in one of the hypothesis mentioned in the fixed effects model (Gujarati, 2003).

In Random effects model, will be treated with coefficient $\beta_{o(i)}$ as a random variable has a μ value, i.e.

$$\beta_{o(i)} = \mu + V_i \qquad , i=1,2.....,N \ ....(15)$$

By substitution Equ (15) in Equ (12) we get a random effects model as follows:

$$\mathbf{y}_{it} = \mu + \sum_{j=1}^{k} \beta_j \, X_{j(it)} + V_i + \varepsilon_{it} \qquad , i=1,2.....,N \ t=1,2.....,T \ ....(16)$$

Where V_i represent error term in the cross-section data set (i). The random effects model sometimes called (Error Components Model), because of that the model in equation (7) it contains two (2) components for error V_i & ε_{it}.

The random effects model has mathematical properties, one of them that:

$Var(\varepsilon_{it}) = \sigma_\varepsilon^2$, $E(\varepsilon_{it}) = 0$, $Var(V_i) = \sigma_\varepsilon^2$, $E(V_i) = 0$.

Suppose we have (Composite Error Term) as follows:

$$W_{it} = V_i + \varepsilon_{it} \qquad \text{....... (17)}$$

Where:

$$E(W_{it}) = 0 \qquad \text{....... (18)}$$

$$Var(W_{it}) = \sigma_V^2 + \sigma_\varepsilon^2 \qquad \text{....... (19)}$$

(O.S.L) Ordinary least squares method, fail to estimate the parameters of random effects model, because it gives incompetent estimates and has standard errors incorrect, which affect in the parameters test, that's because of covariance between W_{it} and W_{is} is not equal to zero i.e.

$$Cov(W_{it}, W_{is}) = \sigma_V^2 = 0 \qquad \text{,t=s .... (20)}$$

For the purpose of estimating random effects model parameters, usually used, Generalized Least Squares (GLS), (Green, 2012).

3.9 HAUSMAN TEST:

It gives the right decision between fixed effects and random effects models. It gives a guide to the researcher or analyst on which model between fixed effects and random effects models are the best or appropriate. It essentially tests whether the unique error terms are connected with the regression, the null hypothesis they are not. When the probability value is significant (that is, when p – value< 0.5) then the appropriate model is fixed effect model, otherwise is random effect model.

3.10 DIAGNOSTIC TESTS:

It is very crucial to carry out diagnostic tests on the regression model. Such test of heteroscedasticity, cross-sectional dependency, and serial correlation are invited to ensure that data analyzed is reliable and acceptable results are obtained.

For example, the occurrence of heteroscedasticity may nullify the statistical test of significance that assumes residual are unassociated and normally allocated and variance does not change with the effect being.

To make a decision about any models more accuracy we use joint test to see if the dummies for all years are equal to 0; if the Probability >F is > 0.05, so we failed to reject the null that the coefficients for all years are jointly equal to zero, therefore no time fixed effects are needed in this case as follows:

3.10.1 TESTING FOR TIME-FIXED EFFECTS (FE):

To see if time-fixed effects are needed when running a FE model use the It is a joint test to see if the dummies for all years are equal to 0, if they are then no time.

3.10.2 TESTING FOR RANDOM EFFECTS: BREUSCH-PAGAN LAGRANGE MULTIPLIER (LM):

The LM test helps you decide between a random effects regression and a simple OLS regression. The null hypothesis in the LM test is that variances across Entities are zero.

3.10.3 TESTING FOR CROSS-SECTIONAL DEPENDENCE/ CONTEMPORA-NEOUS CORRELATION USING BREUSCH-PAGAN LM TEST OF INDEPENDENCE:

According to Baltagi, cross-sectional dependence is a problem in macro panels with long time series (over 20-30 years). This is not much of a problem in micro panels (few years and large number of cases). The null hypothesis in the B-P/LM test of independence is that residuals across entities are not correlated.

3.10.4 TESTING FOR CROSS-SECTIONAL DEPENDENCE/CONTEMPORA-NEOUS CORRELATION USING PASARAN CD TEST:

As mentioned in the previous slide, cross-sectional dependence is more of an issue in macro panels with long time series (over 20-30 years) than in micro panels. Pasaran CD (cross-sectional dependence) test is used to test whether the residuals are correlated across entities. Cross-sectional dependence can lead to

bias in tests results (also called contemporaneous correlation). The null hypothesis is that residuals are not correlated.

3.11 HETEROSCEDASTICITY TEST:

Modified (Wald test) for group wise heteroscedasticity in fixed effect regression model:

The idea behind this test is to find out whether the error terms have constant variance (that is whether the error terms are homoscedasticity). It has hypothesis of H0: Error terms have constant variance (that is, homoscedasticity), H1: Error terms have no constant variance (that is, heteroscedasticity). The criteria is to reject null hypothesis if P – value < 5% critical value.

Hypothesis: H0: sigma (i) ^2 = sigma^2 for all i

H1: sigma (i) ^2 ≠ sigma^2 for all i

3.12 MODEL SPECIFICATION:

Model specification in regression analysis is the method or process of specifying Correct or right functional form of the regression model. The essence of this specification is to determine the independent variable(s) that should be or should not be included in the model, so as to yield good effects on the dependent variable. Right specification leads to good results while miss – specification leads to inaccurate results. In this research, the models uses are:

Regression equation of semi-logarithmic:

$$FDI_{it} = \beta_o + \beta_1(PS_{it}) + \beta_2 (BOP_{it}) + \beta_3 (EG_{it}) + \beta_4 (INF_{it}) + \beta_5 \log (DER_{it-1}) + \varepsilon_{it} \qquad \text{.......(21)}$$

Where:

FDI $_{it}$ = foreign direct investment

PS $_{it}$ = Political stability

BOP $_{it}$ = balance of payments

EG $_{it}$ = economic growth

INF $_{it}$ = inflation rate

DER $_{it}$ = dollar exchange rate

ε $_{it}$ = the error terms.

CHAPTER FOUR
EMPIRICAL RESULTS

4.1 INTRODUCTION:

This research work aspires to evaluate and analyses the relationship between of some macroeconomic variables such as political stability, BOP, economic growth, Inflation rate and dollar exchange rate, which represents the independent variables and FDI flow which represents the dependent variable, the main objective of this chapter is to display results of the analyzed data. At the first instance, was displayed descriptive for statistic tables, and before analyzing the data and use the necessary tests, we used a (Unit-Root Stationarity) for data sets, according to "ADF test and PP test [1]" with a constant and a general trend, in order to determine the level of stability in data, to make sure that the data has collected properly and do not contain gaps between data sets in the time-series to ensure the success of the other tests. Fixed effects regression, followed by random effects regression and Hausman test, diagnostics tests such as random effect test cross – sectional dependency test, and heteroscedasticity test was conducted for validity and reliability of the outcomes.

4.2 DESCRIPTIVE STATISTICS:

Table 4.2.1 Summary Statistics:

Variable	Obs	Mean	Std. Dev.	Min	Max
Years	60	2007	4.356	2000	2014
Country code	60	2.5	1.127	1	4
FDI, flows % of GDP	60	6.232	7.325	-1	26.52
Political stability	60	0.040	0.781	-1.2	1.34
BOP_ Current account % GDP	60	10.336	10.554	-9.68	27.42
Economic growth	60	5.072	3.679	-5.7	15.24
Inflation consumer prices	60	6.356	11.297	-1.1	54.9
Log Dollar exchange rate	60	0.835	0.480	-0.462	1.335

Source: by researcher dependence on the outputs of STAT 9.2program

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(1)ADF (Augmented Dickey-Fuller) test and PP (Philips-Perron)test

From the table 4.2.1 above, there are sixty (60) observations and four countries. The average FDI is 6.232; minimum FDI is -1 and the maximum FDI is 26.52; the average political stability is .0405; minimum political stability is -1.2; maximum political stability is 1.34; average economic growth is 5.072; minimum economic growth is -5.7; maximum economic growth is 15.24; average dollar exchange rate is 0.835; minimum dollar exchange rate is -0.462; maximum dollar exchange rate is 1.335.

4.3 THE UNIT ROOT STATIONARITY TESTS:

Table 4.3.1 (a) Summary Results of the Unit Root Stationarity Test:

Variables	ADF test (constant and a general trend)	Prob	PP test (constant and a general trend)	Prob	Result
FDI	20.35	0.0091*	40.98	0.0000*	1St Difference
PS	15.92	0.0434*	47.49	0.0000*	1St Difference
BOP	21.00	0.0071*	53.47	0.0000*	1St Difference
EG	16.67	0.0337*	23.91	0.0024**	At Level~ I(0)
INF	20.93	0.0073*	48.18	0.0000*	1St Difference
DEX	16.70	0.0333*	42.73	0.0000*	1St Difference

Source: Researcher work dependent on the outputs of Eviews.8.1 program

Note: *Significant at 5% level and Integrated, when taking (1^{St}, d) [1]
    **Significant at 5% level and Integrated, from the zero degree I(0) [2]
    ***Significant at 10% level and Integrated, from the one degree I(1) [3]

From the table 4.3.1 (a) above, shows that according to ADF test and PP test with a constant and a general trend, that the time-series of economic growth (EG) according to standard analysis is stable at the level with significant at level 5%, therefore we say (integrated, from the zero degree)... I(0). As for the time-series for each of the (FDI) foreign direct investment flows, (PS) political stability, the (BOP) balance of payments, and the (DEX) exchange rate; are not given the degree of

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[1] EViews.8.1, program outputs, See: ($_1$st $_d$) means: the data integrated when taking the first-difference level, ($_2$nd $_d$) means: the data integrated when taking the second –difference, with significant at levels (5%).

[2] I(0) means: the data Integrated from the zero degree, which means significant at levels (5%).

[3] I(1) means: the data Integrated from the one degree, which means significant at levels (10%).

stillness identical at level, but it becomes identical after taking the first difference to them. And also significant at level 5%, which means Integrated, from the degree …I(1st… d). These results indicate that all data (time-series) integrated and stable.

4.4 POOLED OLS REGRESSION TEST:

Table 4.4.1 (b) Pooled OLS Regression Results for Effect of Macroeconomic Variables on foreign direct investment:

FDI, flows % of GDP	Coef.	Std. Err.	T	P>|t|
Political stability	3.286***	0.945	3.48	0.001
BOP Current account %of GDP	0.207***	0.065	4.17	0.0000
Economic growth	0.161	0.127	1.28	0.207
Inflation consumer prices	-0.136**	0.056	-2.43	0.019
Log Dollar exchange rate	-9.243***	1.341	-6.89	0.0000
_ Cons	11.074***	1.493	7.42	0.0000
R-squared = 0.80			Prob > F	= 0.0000

Note: ***Significant at 1% level, **Significant at 5% level.

The estimated equation:

FDI= 11.07 + 3.286 PS + 0.270 BOP + 0.161 EG -0.136 INF - 9.243 log DER   ……. (22)

From the table 4.4.1(b) above present OLS regression result that evaluates the impact of macroeconomic variables on FDI for four countries emerging selected from 2000 to 2014; FDI is the dependent variable, the number of observations is 60; the value of R-squared (R^2) is 80% which means the explanatory variables, could explain the dependent variable, by 80% and the remaining 20%, it's back to errors that were not included in the model. The result indicates that political stability is significant at 5% level and has positive relationship with FDI; meaning that any 1% increase in political stability that the FDI it will increases by 3.286% in effect this is considered a strong influence and in line with economic theory line, BOP which include current account is significant at 1% level and has a positive relationship with FDI; this indicates when (current account) increases by 1%, that FDI will also increase by 27%.   This is consistent with the economic theory of line,

as an increase in the current account balance refers to the balance of trade balance in the sense of trade policy in theory success. Economic growth is not significant at 10% and below but has a positive relationship with FDI and this is in line with economic theory; this signifies that economic growth can only increases FDI by 16.2% at 20% level and above, but our concern is 10% level and below, thus economic growth is not significant at such levels. Therefore, economic is not significant in our case. Inflation is significant at 5% level and has negative relationship with FDI; this indicates that, if inflation increases by 1% FDI will decreases by -13.6%. Because always inflation decreases the purchasing power of local currency; and always have negative relationship with currency and purchasing power parity, inflation considered an important indicator in taking decisions of investors, because it is a good indicator for the study of the market situation in the host countries for the benefit of investors. Exchange rate is significant at 1% level and has negative relationship with FDI; this indicates when exchange rate dollar increases by 1% or in other words, increasing the value of local currency against foreign currency by 1% that FDI will drop by -9.243%, This shows that the stability of exchange rates will lead to increase the flow of FDI opportunities, To support this hypothesis, for example, stressed (Froot, & Stein, 1989-1991) in their study, which was conducted during (1989, 1991) "that changes in wealth translate into changes in the demand for direct investment. By systematically lowering the relative wealth of domestic agents, a depreciation of the domestic currency can lead to foreign acquisitions of certain domestic assets".

4.5 FIXED - EFFECTS (WITHIN) REGRESSION TEST:

Table 4.5.1 (c) Fixed - Effects (within) Regression Results:

FDI, flows % of GDP	Coef.	Std. Err.	T	P>|t|
Political stability	-0.880	2.475	-0.36	0.723
BOP Current account % of GDP	0.163*	0.092	1.78	0.081
Economic growth	0.225*	0.125	1.80	0.078
Inflation consumer prices	-0.059	0.062	-0.95	0.347
Log Dollar exchange rate	-4.246	3.483	-1.22	0.228
_ Cons	7.355	3.370	2.18	0.034

Note: ***Significant at 1% level. **Significant at 5% level. *Significant at 10% level. Prob > F = 0.0891.

From the table 4.5.1 (c) above, it shows that political stability is not significant at level 10% of significance and has negative relationship with FDI flows; this means that when political stability increases by 1% that FDI flows will decreases by -88.6% ; factually this is incompatible with economic hypothesis. BOP current account is significant at level 10% and has positive relationship with FDI flows; this means that when BOP which include current increases by 1% that FDI flows will increases by 16%. Economic growth is significant at level 10% and has positive relationship with FDI flows; this means that when economic growth increases by 1% that FDI flows will increases by 2.25%. Inflation rate is not significant at level 10% and has negative relationship with FDI flows; this means that inflation rate increases by 1% that FDI flows; will decreases by -5.9%; factually this is this is in line with economic hypothesis, Dollar exchange rate is not significant at level 10% and has negative relationship with FDI flows; this means that dollar exchange rate increases by 1% that FDI flows; will decreases by 42.4%; and this as well in line with economic hypothesis the probability value is 0.0891; all variables are not significant which means all the coefficient highest value from 0.0891. Therefore this model is invalid and not efficient and reliable.

4.6 RANDOM - EFFECTS (WITHIN) REGRESSION TEST:

Table 4.6.1 (d) Random - Effects (within) Regression Results:

FDI, flows % of GDP	Coef.	Std. Err.	T	P>|t|
Political stability	3.286***	0.944	3.48	0.001
BOP Current account % of GDP	0.270***	0.064	4.17	0.0000
Economic growth	0.161	0.126	1.28	0.202
Inflation consumer prices	-0.136**	0.056	-2.43	0.015
Log Dollar exchange rate	-9.243***	1.341	-6.89	0.0000
_ Cons	11.074	1.493	7.42	0.0000

Note: ***Significant at 1% level, **Significant at 5% level, *Significant at 10% level.
 Prob > F = 0.0000.

From the table 4.6.1 (d) above, it shows; the result indicates that political stability is significant at 5% level and has positive relationship with FID; meaning that any 1% increase in political stability, FDI will increases by 3.286 %. BOP Current account is significant at 1% level and has positive relationship with FID; this indicates that if BOP increases by 1%, FID will also increases by 27%. Economic growth is not significant at 10% and below but has a positive relationship with FDI and this is in line with economic theory; this signifies that economic growth can only increases FDI by 16.1%.Inflation is significant at 5% level and has negative relationship with FDI; this indicates that, if inflation increases by 1% FDI will decreases by -13.6%.Doller exchange rate is significant at 1% level and has negative relationship with FDI; this indicates that, if inflation increases by 1% FDI will decreases by -9.243%. The probability value is 0.000, this indicate that random effect model is significance at all level of significant which means all the coefficient are different from zero. Therefore this model is valid, efficient and reliable.

4.7 HAUSMAN TEST:

The Hypotheses of test

Null Hypothecs: H0: The random effect model is appropriate.

Alternative Hypothecs: H1: The fixed effect model is appropriate.

Table 4.7.1 (e) Hausman Test Results:

FDI, Percent of GDP	b Fixed	B Random	(b-B) Difference	sqrt(diag (V_b-V_B)) S.E.
Political stability	-0.880	3.286	-4.166	2.287
BOP Current account % of GDP	0.163	0.270	-0.106	0.065
Economic growth	0.225	0.161	0.064	.
Inflation consumer prices	-0.059	-0.136	0.076	0.028
Log Dollar exchange rate	-4.246	-9.243	4.996	3.215

Probability > chi2 = 0.2252

From the table 4.7.1 (e) above shows the result of Hausman test. (b) – Column shows the values of the coefficients of the variables in the fixed effects regression model; (B) – column shows the values of the coefficient of the variables in the random effects regression model while (b-B) Shows the difference between fixed effects and random effects regression models. Probability > chi2 = 0.2252

The probability value is not significant at all respective level of significance (that is, Probability > chi2 = 0.2252). The criteria here is that, if probability value is significant, Prob< 1%, 5%, 10% levels, fixed effects should be accepted as valid model otherwise it is Random effect model should be accepted. Therefore, with regard to this research, random effect results are accepted.

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4.8 DIAGNOSTIC TESTS:

4.8.1 TESTING FOR TIME-FIXED EFFECTS:

Table 4.8.1 (f) Testing for Time-Fixed Effects Results:

FDI, Percent of GDP	Coef.	Std. Err.	T	P>|t|
Political stability	2.933	3.032	0.97	0.340
BOP Current account %of GDP	0.127	0.123	1.03	0.308
Economic growth	0.493	0.210	2.34	0.025
Inflation consumer prices	0.036	0.079	0.46	0.651
Log Dollar exchange rate	0.525	4.084	0.13	0.898
_Iyears_2001	3.728	2.997	1.24	0.221
_Iyears_2002	.	.	.	.
_Iyears_2003	.	.	.	.
_Iyears_2014	3.703	2.478	1.49	0.144
_cons	-0.345	4.232	-0.08	0.935

F (14, 37) = 1.38,   Prob > F =   0.2107

(1) _Iyears_2001 = 0
(2) _Iyears_2002 = 0
(3) _Iyears_2003 = 0
(4) _Iyears_2004 = 0
(5) _Iyears_2005 = 0
(6) _Iyears_2006 = 0
(7) _Iyears_2007 = 0
(8) _Iyears_2008 = 0
(9) _Iyears_2009 = 0
(10)_Iyears_2010 = 0
(11)_Iyears_2011 = 0
(12)_Iyears_2012 = 0   F(14,   37) =   1.38
(13)_Iyears_2013 = 0   Prob > F =   0.2107
(14)_Iyears_2014 = 0

Ho: The coefficients for all years are jointly equal to zero.

H1: The coefficients for all years are not jointly equal to zero.

The decision:

The Prob>F= 0.2107> 0.05, so we failed to reject the null that the coefficients for all years are jointly equal to zero, therefore no time fixed effects are needed in this case.

4.8.2 TESTING FOR RANDOM EFFECTS BREUSCH-PAGAN LAGRANGE MULTIPLIER (LM):

Table 4.8.2(g) the Testing for Random Effects Breusch-Pagan Lagrange Multiplier (LM):

Breusch and Pagan Lagrangian multiplier test for random effects:

FDI, Percent of GDP [countrycode,t] = Xb + u[countrycode] +e[countrycode,t]

Estimated results:

Estimated results:	Var	sd = sqrt(Var)
FDI, Percent of GDP	53.65657	7.325065
E	11.00112	3.316794
U	0	0

Test: Var(u) = 0   chi2(1) =   1.62   Prob > chi2 =   0.2027

From the table 4.8.2(g) above shows the results of random effects test. The essence of this test is to find out if there is significant difference across the countries; this will gives clue on whether random effects or ordinary least square (OLS) is appropriate, Which has two hypotheses:

- Null hypothesis, H0: Random effect is not appropriate and ordinary least square (OLS) is appropriate.
- Alternative hypothesis, H1: Random effects are appropriate and ordinary least square (OLS) is not appropriate.

If P – value < 5% and conclude that Random effect are appropriate, therefore we acceptance alternative hypothesis (H1) and reject (H0) null hypothesis.

For this study the P – value > 5% which's equal to 0.2027 as it is shown in Table 4.8.2(g) above, therefore the decision is to acceptance null hypothesis (H0:) which states that the random effect model is not appropriate, ordinary least square (OLS) are appropriate.

Here we failed to reject the null and conclude that random effects are not appropriate. This is, no evidence of significant differences across countries, therefore you can run a simple OLS regression.

4.8.3 TESTING FOR CROSS-SECTIONAL DEPENDENCE/CONTEMPORANEOUS CORRELATION USING BREUSCH-PAGAN (LM) TEST OF INDEPENDENCE:

Table 4.8.3 (h) Correlation matrix of residuals:

CORRELATION MATRIX OF RESIDUALS:

```
        _MYS    _SGP   _SAU   _TUR
_MYS   1.0000
_SGP   0.3593  1.0000
_SAU  -0.5945 -0.1091  1.0000
_TUR  -0.1907  0.2070  0.3649  1.0000
```

Breusch-Pagan LM test of independence: chi2(6) =   10.600,   Pr = ***0.1015***

Based on 15 complete observations over panel units

The correlation matrix above shows the result of correlation of the residuals between the countries. The idea is to find out whether one-country residuals have a relationship to other country residuals.

- Null hypothesis H0: residuals across countries are not correlated.
- Alternative hypothesis H1: residuals across countries are correlated.

If P – value < 5% critical value we accept the null hypothesis (H0), which states that residuals across countries are not correlated. Otherwise we accept the alternative hypothesis (H1) which states that residuals across countries are correlated.

Through the results of this test Pr= 0.1015 which's means P – value > 5%, therefore the result, null hypothesis was accepted, conclude that residuals across countries are not correlated

4.8.4 TESTING FOR CROSS-SECTIONAL DEPENDENCE/ CONTEMPORANEOUS CORRELATION USING PASARAN (CD$_S$) TEST:

Pesaran's test of cross sectional independence = 0.058, Pr = 0.9535

Average absolute value of the off-diagonal elements = 0.304

Pasaran CD (cross-sectional dependence) test is used to test whether the residuals are correlated across entities. Cross-sectional dependence can lead to bias in tests results (also called contemporaneous correlation). The null hypothesis is that residuals are not correlated. If p-value > 5% we reject null hypothesis, other way we accept alternative hypothesis.

Since P-value > 5% we accept the null hypothesis, that the residuals are not correlated (No cross sectional dependence).

4.9. HETEROSCEDASTICITY TEST:

- The Hypothesis of test:

    H0: sigma (i) ^2 = sigma^2 for all i

    H1: sigma (i) ^2 ≠ sigma^2 for all i

- The Results:

Chi2 (4) = 359.56

Prob > chi2 = 0.0000

∵ Prob > chi2 = 0.0000 < 5%

- The Decision:

From the result (H0) null hypothesis can be rejected and conclude that the error terms didn't have constant variance (that is, error terms are heteroscedasticity).

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

This research, explores the hypotheses of foreign direct investment inflows across four (4) Asian countries from 2000 to 2014. Several researches have being carried out on testing hypotheses of FDI using varieties of econometrics techniques for the analysis. Some of these researches being carried out, are not being conducted in determining of the quantity of FDI inflows alone, but it also being conducted to find out how FDI reacts to other economics variables such as political stability, exchange rates etc. This research follows the step of finding out the impact of Macroeconomic variables on FDI inflows as well as finding out the nature and type of relationship between political stability, BOP, economic growth, inflation rates, and exchange rates with FDI inflows in these countries.

General introduction of the subject matter under study

Chapter one followed by significant of study, research questions, research hypotheses, objectives of research, contribution of the study to the literature, consists of conceptual framework, historical background of FDI, some definitions about concept of FDI, advantages and disadvantages of FDI.

Chapter two consists of theoretical and empirical literature reviews. In this chapter theories and empirical studies relevant to the subject matter of the study were clearly stated and presented.

Data and methodology are in chapter four, were the data on the variables under study and the source of the data were clearly stated. Methods used for the analysis of the data such as unit root, fixed effects, random effects, Hausman test, diagnostic test and model specification were presented.

In chapter four, data collected for the analysis, was presented, analyzed, and Interpreted. In the first place, unit root test. The idea of this test is to testing the stationarity degree of data to verification the integrity of the data that have been obtained from sources, In order to ascertain that the data suffer from unit root or not before using data with other tests, fixed effects regression was carried out. The essence of the model is to control all time-invariant variables such as culture, race, gender, religion, and so on. All the variables were found to be significant. Random effects regression was also carried out. The idea of this model is that the variation causes by the independent variables were assumed to be random. All the variables became significant.

Hausman test was carried out in order to find out the appropriate or best model between fixed effects and random effects. Diagnostics tests were also carried out for the purpose of ensuring that the results of the analysis are valid, efficient and reliable. Some of the tests are:

Breusch-Pagan Lagrange Multiplier (LM) test for random effects. The rationale behind this test is to find out at first place, whether panel data can be analyzed using fixed, random effects or ordinary least square. Cross – sectional test of independence was carried out in order to find out if the residuals of one country have relationship with the residuals of the other country among the ten countries under study. Heteroscedasticity test was conducted in order to find out whether the variance of the error terms is constant.

Finally, summary, conclusion and recommendation were presented in chapter five in accordance with the findings.

5.2 CONCLUSION

Base on the results found from the data analyzed. The following conclusions were made:

- Political stability which is the most important Indicator in this study, had a positive significant impact on foreign direct investment inflows, as it proposed by foreign direct investment theories. Which, it was concluded that countries that have political stability can attract the attention of

investors and MNCs, that means, Asian countries which is under study in support of FDI hypothesis.

- BOP (Current Account) also, had a positive significant impact on foreign direct investment inflows.

- It was found that inflation rates and exchange rates have a negative impact on FDI inflows. Therefore, increases of any of these variables would lead to decreases in inflows.

- It was discovered that economic growth had the positive impact on FDI but without significant level.

5.3 RECOMMENDATIONS

According to above conclusions we can reach to the following recommendations:

- The governments in respective states should play a proactive role in attracting the MNCs through provide an appropriate investor-friendly environment. who are interested sharing the investments, through the provision of security and political stability in the country and the improvement of international relations with neighboring countries to ensure the safety the MNCs and its property, where that the political stability are the important factors that attract the capital into the country.

- Re-evaluated for economic strategies by continuously and over the long term in selected countries, and policies that can adapt quickly to changes and global challenges, and it is taking targeted measures for the development of the country; as a world-class financial center, for example, allow the monetary authorities to local banks and the insurance sector to increase the participation rate of foreigners, as well as the adoption of the monetary authorities more open approach to the supervision and development of the financial sector, with implement policies to develop debt in market and reform corporate governance.

- Activating the role of the private sector and increased interest in local SMEs to maintain a balanced relationship between the state and the private sector because of this relationship, especially in the economic development

process importance with the need to provide financial support and technical assistance for small and medium enterprises in order to help their entry into mergers and alliances between them in order to strengthen their competitiveness with foreign companies.

- The development of local scientific and technological capabilities so that they are inherent in the technology transfer process, which calls for the matter to human capital development and reform of the education system in these countries and the provision of material and moral environment for researchers and scientists in various disciplines through the establishment of research and studies the developmental centers.

- More rational management, from the monetary and fiscal policies to make it identical by using their tools, to fight cases of inflation and fluctuations in exchange rates, in framework of wise policy to make it have more stability, where the stability of these two indicators is a translation to the success of monetary and fiscal policy for both, In order to:

1- A gain the confidence of investors to local markets by the stability of inflation and exchange rate at acceptable levels.

2- Attract the attention of MNCs through the stability of macro indicators.

3- Increase investment opportunities by monetary and financial guarantees.

Finally, the governments in respective countries should seek to improve the performance of other macroeconomic indicators such as the balance of payments and economic growth rates... etc.

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APPENDIX:

DATA

The Macro-Economic Indicators during the Period (2000-2014) in Malaysia

Country	Years	FDI, Net, inflows % of GDP)	Political Stability Overall Indicators	BOP, (Current account % of GDP)	Economic Growth, GDP (growth annual %)	Inflation, (consumer prices annual %)	Dollar exchange rate
Malaysia	2000	4.04	0.04	9.05	8.86	1.5	3.8
Malaysia	2001	0.6	0.04	7.85	0.52	1.4	3.8
Malaysia	2002	3.18	0.46	7.13	5.39	1.8	3.8
Malaysia	2003	2.24	0.46	12.14	5.79	1	3.8
Malaysia	2004	3.71	0.31	12.09	6.78	1.5	3.8
Malaysia	2005	2.73	0.55	13.92	5.33	3	3.79
Malaysia	2006	4.73	0.26	16.1	5.58	3.6	3.67
Malaysia	2007	4.69	0.17	15.38	6.3	2	3.44
Malaysia	2008	3.28	0.08	16.86	4.83	5.4	3.34
Malaysia	2009	0.06	-0.07	15.72	-1.51	0.6	3.52
Malaysia	2010	4.27	0.12	10.06	7.43	1.7	3.22
Malaysia	2011	5.07	0.08	10.9	5.29	3.2	3.06
Malaysia	2012	2.83	-0.01	5.19	5.47	1.7	3.09
Malaysia	2013	3.49	0.05	3.47	4.71	2.1	3.15
Malaysia	2014	3.14	0.34	4.28	5.99	3.1	3.27

Source: 2015-2016, depending on: https://data.oecd.org/conversion/exchange-rates.htm
http://www.theglobaleconomy.com
http://databank.worldbank.org/

The Macro-Economic Indicators during the Period (2000-2014) in Singapore

Country	Years	FDI, Net, inflows % of GDP)	Overall Indicators Political Stability	BOP , (Current account % of GDP)	Economic Growth, GDP (growth annual %)	Inflation, (consumer prices annual %)	Dollar exchange rate
Singapore	2000	17.2	1.04	10.6	8.9	1.4	1.72
Singapore	2001	16.9	1.04	13.51	-0.95	1	1.79
Singapore	2002	6.96	1.18	13.33	4.21	-0.4	1.79
Singapore	2003	12.31	0.86	22.58	4.44	0.5	1.74
Singapore	2004	18.41	1.11	17.96	9.55	1.7	1.69
Singapore	2005	14.2	1.13	21.87	7.49	0.4	1.66
Singapore	2006	24.98	1.21	24.96	8.86	1	1.59
Singapore	2007	26.52	1.15	25.97	9.11	2.1	1.51
Singapore	2008	6.35	1.31	14.43	1.79	6.5	1.41
Singapore	2009	12.38	1.14	16.82	-0.6	0.6	1.45
Singapore	2010	23.3	1.14	23.66	15.24	2.8	1.36
Singapore	2011	17.43	1.18	21.99	6.21	5.3	1.26
Singapore	2012	19.54	1.34	17.17	3.41	4.5	1.25
Singapore	2013	21.44	1.34	17.89	4.44	2.4	1.25
Singapore	2014	22.35	1.23	19.09	2.92	1	1.27

Source: 2015-2016, depending on: https://data.oecd.org/conversion/exchange-rates.htm
http://www.theglobaleconomy.com
http://databank.worldbank.org/

The Macro-Economic Indicators during the Period (2000-2014) in

Saudi Arabia

Country	Years	FDI, Net, inflows % of GDP)	Political Stability Overall Indicators	BOP, (Current account % of GDP)	Economic Growth, GDP (growth annual %)	Inflation, (consumer prices annual %)	Dollar exchange rate
Saudi Arabia	2000	-1	0.11	7.6	4.86	-1.1	3.75
Saudi Arabia	2001	0.01	0.11	5.11	0.55	-1.1	3.75
Saudi Arabia	2002	-0.33	-0.09	6.3	0.13	0.2	3.75
Saudi Arabia	2003	-0.27	0.1	13.07	7.66	0.6	3.75
Saudi Arabia	2004	-0.13	-0.68	20.07	9.25	0.3	3.75
Saudi Arabia	2005	3.69	-0.25	27.42	7.26	0.7	3.75
Saudi Arabia	2006	4.86	-0.54	26.28	5.58	2.2	3.74
Saudi Arabia	2007	5.85	-0.5	22.45	5.99	4.2	3.75
Saudi Arabia	2008	7.59	-0.37	25.46	8.43	9.9	3.75
Saudi Arabia	2009	8.5	-0.51	4.88	1.83	5.1	3.75
Saudi Arabia	2010	5.55	-0.22	12.67	4.76	5.3	3.75
Saudi Arabia	2011	2.44	-0.46	23.68	9.96	5.8	3.75
Saudi Arabia	2012	1.66	-0.45	22.45	5.38	2.9	3.75
Saudi Arabia	2013	1.19	-0.41	18.2	2.67	3.5	3.75
Saudi Arabia	2014	1.06	-0.24	10.2	3.47	2.7	3.75

Source: 2015-2016, depending on: https://data.oecd.org/conversion/exchange-rates.htm
http://www.theglobaleconomy.com
http://databank.worldbank.org/

The Macro-Economic Indicators during the Period (2000-2014) in Turkey

Country	Years	FDI, Net, inflows % of GDP)	Overall Indicators Political Stability	BOP, (Current account % of GDP)	Economic Growth, GDP (growth annual %)	Inflation, (consumer prices annual %)	Dollar exchange rate
Turkey	2000	0.37	-0.85	-3.72	6.77	54.9	0.63
Turkey	2001	1.71	-0.85	1.92	-5.7	54.4	1.23
Turkey	2002	0.47	-0.87	-0.27	6.16	45	1.51
Turkey	2003	0.56	-0.81	-2.49	5.27	25.3	1.5
Turkey	2004	0.71	-0.84	-3.62	9.36	10.6	1.43
Turkey	2005	2.08	-0.6	-4.44	8.4	10.1	1.34
Turkey	2006	3.8	-0.6	-6	6.89	9.6	1.43
Turkey	2007	3.41	-0.82	-5.84	4.67	8.8	1.3
Turkey	2008	2.72	-0.85	-5.5	0.66	10.4	1.3
Turkey	2009	1.4	-1.03	-1.95	-4.83	6.3	1.55
Turkey	2010	1.24	-0.92	-6.2	9.16	8.6	1.5
Turkey	2011	2.09	-0.96	-9.68	8.77	6.5	1.67
Turkey	2012	1.68	-1.19	-6.15	2.13	8.9	1.8
Turkey	2013	1.51	-1.2	-7.85	4.19	7.5	1.9
Turkey	2014	1.56	-1.06	-5.83	2.91	8.9	2.19