

IMPACT OF MACROECONOMIC FACTORS ON
FOREIGN DIRECT INVESTMENT (FDI): EVIDENCE
FROM UNITED STATES

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DECLARATION

We hereby declare that:

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

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LIST OF ABBREVIATIONS

AIC	Akaike Information Criterion
E-views	Error Correction Model
EXR	Exchange Rate
EXP	Export
FDI	Foreign Direct Investment
GARCH	Generalized Autoregressive Conditional Heteroscedasticity
GDP	Gross Domestic Product
GUI	Graphical User Interface
MNC	Multinational Company
OLS	Ordinary Least Square
Q	Quarter
TAX	Taxation
TPP	Trans-Pacific Partnership
USD	United States Dollar
U.K	United Kingdom
U.S	United States
USFDI	United States's Foreign Direct Investment
VIF	Variance Inflation Factor
WHO	World Health Organization

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PREFACE

This research project is submitted as a part of the requirement to fulfil for the Bachelor of Finance (Hons) course. The title chosen for this research project is “Impact of Macroeconomic Factors on Foreign Direct Investment (FDI): Evidence from United States”. It revolves around the determinants of the foreign direct investment inflows in United States. Foreign Direct Investment (FDI) is one of the key drivers in speeding up the development and economic growth in United States. FDI plays a crucial role in United States economy as it generates economic growth by increasing capital formation through the expansion of production capacity. It is reported that the charm of United States in attracting FDI had declined eventually from 2007Q1 until 2009Q1. It was then increased from 2010Q2 to 2012Q2 but dropped significantly from 2012Q3 to 2014Q1. Surprisingly, FDI inflow in United States increased dramatically in 2015Q4. The high volatility of FDI inflows to United States has drawn attention to the further study of the determinants of FDI inflow in United States.

ABSTRACT

Foreign Direct Investment (FDI) plays a crucial role in speeding up the development and economic growth of a country. In particular, developing countries rely heavily on FDI to promote their economy as they face capital shortage for their development process. FDI not only brings in capitals and technology, but also skills into developing countries. And these ended up helping the countries to grow faster by satisfying the country's needs. The strong growth performances experienced by United States economy greatly depends on the FDI. FDI generates economic growth by increasing capital formation through the expansion of production capacity, promotion of export growth and creation of employment in United States. FDI inflows of United States started fluctuating from 2005Q1 to 2019Q1 and this high volatility of United States FDI inflows drew the researchers' attention to examine the factors affecting FDI inflows in Malaysia by using the annual data from year 1993Q2 until 2019Q1. Multiple linear regressions model is applied to study the relationship between explanatory variables (export, exchange rate and taxation) and explained variable (United States FDI inflow). Empirical results show that export, exchange rate and taxation significantly and positively affect United States FDI inflows.

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CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

Chapter 1 presents the preface of the overall research starts with defining and explaining the Foreign Direct Investment (FDI) and discussing the effect of FDI brought to a country. In this study, United States (U.S) was chosen to be the subject. Macroeconomic factors effecting the FDI in U.S will be introduced. Furthermore, this chapter will also discuss the research objective, research question and research hypothesis, as well as the significance, importance and contributions of study.

1.1 Research Background

Foreign Direct Investment (FDI) is an investment instrument which based on personally or country made business interests in another country. FDI normally occurs when a developed country invests in developing country which also refer to cross-broader investment that directly involves in daily operations of businesses. It includes business international transaction and particular cash flow between countries (Markusen and Maskus, 2001). FDI is the investment which consist transfer of capital to host country from home country. Hence, it can consider one of expected return from investment. Cushman (1988) prove that the change in exchange rate will give uncertainty impact to international trade flows.

Welfens & Baier (2018) stated the foreign direct investment (FDI) of the country will stimulated by some issues based on the implication of BREXIT analysis, for example impulses are U.K leaves Europe single market that reduce the FDI. So when U.K government tend to increase their country export and improve the foreign direct

investment, they have a strategy of decreasing the tax rate that have high impact to stimulate the foreign direct investment.

The Star (2019, October 19) stated, Google suspended business with Huawei after Trump was blacklisted. Alphabet Inc's Google suspended business with Huawei, which required the transfer of hardware, software and technical services. Huawei is a company that U.S government is trying to blacklist globally. Google try to avoid Android App install in Huawei smartphones in future version. It will lose access to Google Play Store and Gmail and YouTube apps. This will affect and decrease the FDI decision of others country to China.

The Star (2019, October 04) state the ringgit continued its upward momentum in July to open higher against the U.S dollar, spurred by improved buying interest for the local unit. The higher ringgit was also driven by the rise in global oil prices. As for the MYR, they expect it to trade between support level of 4.0954 and 4.1051 while the resistance is pinned at 4.1168 and 4.1268 against the dollar. This study can say that the raising oil price will lift Ringgit against US\$.

Taxation (TAX) will affect FDI by location that which country want to invest (DeMooij and Ederveen, 2006). Location is important for the investor to choose where want to invest since rate of taxation need to paid in every country are different. Demooij and Ederveen (2006) have implied the result of FDI increase by about 3% when reduce one percentage point of taxation rate. They show this result by carry out 35 empirical studies for FDI mainly between homogenous countries which are either FDI from U.S to Europe or within the U.S and Europe. This show that there has inverse relationship between TAX and FDI (Altshuler and Grubert, 2003) since increase in taxation will reduce the return in FDI (Warskett, et al, 1998). Besides, loss carry-forward position of firms will influence by corporate taxation (MacKie-Mason, 1990). When increase one percentage point in corporate tax rate will rises by 0.4 percentage points in debt to assets tend to decrease the profit of company (Bartholdy, Fisher and Mintz, 1987). Devereus and Pearson (1989) and Ruding Committee

(Ruding (1992)) show taxation system play an important role for the business's investment decision in foreign countries to declare profits. For this reason, if government of country reduce the tax charge in goods and services in the business environment, thus will attract more foreign investment to invest in particular country.

From Karni, Swanson and Shear (2019) stated that government policy in U.S has change lead to change in FDI. President of U.S, Donald Trump stated that will impose 5% of tariff for all imported goods from Mexico started from 10 June 2019, taxes will "increasingly" before the cross-border movement of undocumented immigrants' ceases. Tariffs will be in place until illegal immigrants come to our country through Mexico was stop in U.S. Besides, this tariff will continue to increase 10% by following month and then raising by 5% in three months and remain at 25% before action was taking by Mexico. Rufus Yerxa who is chairman of National Foreign Trade Commission state that increase of tariff for all Mexican goods will seriously affect American consumer and business and may cause strong opposition from company. Mexican peso weakened against the US dollar, while Japanese automakers' stocks fell because many of them have production facilities in Mexico. Futures tracking the US stock market showed that Wall Street will open lower on following day.

Xing (2006) mentioned impact of on FDI has generally focused on movement of exchange rate (EXR), when depreciation of host country currency while encourage FDI inflows into home country but greater EXR volatility would discourage FDI inflows. Lee & Min (2011) stated EXR movement well to determine the FDI, but there still have sudden deviation of EXR from its long-run equilibrium level if there are decreasing in ability of investment, same to implication of real option based FDI hypothesis. Based on the SHI (2019), this research stated that country wants to increase FDI when its currency depreciates. The net FDI inflow and the EXR are positively correlated. Based on Xing (2006), FDI relations are very important in formulating FDI and EXR policies. China faces pressure from the U.S, its major trading partner, to implement a flexible exchange rate regime.

The Star (2019, October 04) stated China and U.S have reached an interim agreement on the trade agreement. China agreed buy up to US\$50billion of U.S agricultural products as U.S dollar has depreciated by 0.71% due to global appetite for risk appetite in the U.S financial services market. U.S has agreed to suspend new tariffs, which will take effect on October 15. This research comment that U.S dollar exchange risk can be affected by global economic problem which may also affect decision of foreign direct investor. With weaken of dollar currency, it may affect confidence of foreign direct investor to make investment inflow to U.S.

Exports (EXP) is one of independent variable that can affect FDI (Shawa and Shen, 2013). The flow of FDI able to rises the amount of productivity in form of EXP. In order to improve international trade performance, investment from foreign country is absolute necessary. FDI and export will give the positive economic process but it only will affect by the certain countries in the transaction process (Dimitrijevic and Fabris, 2007). According to Lall and Narula (2004), when FDI was implemented in foreign countries, there will give impact to the competitors in host countries. Besides, there will hire more labour with have certain skills and knowledge. The view of local firm to multinational company not only expand their business to host country and bring some new product to other countries they invest (Moran, 2010). It is important of FDI implement in that country on trade performance, because it will raise the volume, number, quality of exported product. It considers positive situation since can reduce the entry costs which is import in foreign markets (Crespo and Fontoura, 2007; Harding and Javorcik, 2011).

Latest news released by Iyengar (2019, June 17) states New Delhi in India, announced it will crack down on fragile global trade on June 17, thereby increasing tariffs on U.S exports. India announced a new tariff plan for the first time a year ago to offset increased U.S tariffs on Indian steel and aluminum imports. The value of goods and services exchanged between the two countries is around \$142billion a year, but relationship between U.S and India has deteriorated in past few weeks after

Trump administration ended India's participation in preferential trade earlier this month.

Tensions have been rising since U.S ended India's participation in preferential trade program this month. According to U.S government data, there is a slight surplus in merchandise trade between India and U.S. In 2018, India exported about \$54billion to the U.S and purchased U.S goods worth about \$33billion. Trump has repeatedly criticized India's tariffs on motorcycles and whiskies. After U.S dairy farmers and medical device manufacturers complained that tariffs imposed by New Delhi damaged their exports, Trump decided to cancel trade privilege against India.

1.2 Problem Statement

FDI is a combination of globalization and economy of world (Denisia, 2010). FDI provides the opportunity of job creation, improvement in productivity and technology. U.S is a country that has largest FDI. Besides, U.S has provided market opportunity to multinational company (MNC).

There is a trade war between U.S and China and affected investor's decision making in 2019. The trade war happened due to tariffs between goods of U.S and China. The trade war between U.S and China lead exporter of U.S loss China's market and affected U.S business which is operated in China (The Star, 2019, October 19). Since U.S government impose the tariff to China, U.S exports to China was fallen as China also imposed retaliatory tariffs to U.S. Besides, China set the reference rate to 6.7671CNY maintain lower interest rate to the USD. Which means that, China manipulating the yuan renminbi (RNB) and lower interest rate while U.S is increasing the rates, and the result USD fell more than 1% (Domm, 2018). Based on the reason above, USFDI will be affected since the confident of investor invest in U.S will

decrease. In short, trade war directly impacts the tax and export from U.S to China and indirectly affect the exchange rate.

There is a decline in FDI in 2018. USFDI is decrease from China and other countries as worry about trade war. The main reason is because of uncertainty in economic policy of U.S which is Donald Trump administration's tax cuts. This lead to multinational company of U.S tends to send back their accumulated investment earning. The Donald Trump administration's tax cut included personal income tax cut. The deduction of income tax directly increases the individual income level. When the income levels increase, the purchasing power of U.S increase and U.S demand more foreign goods (Onwuka & Zoral, 2002). Therefore, the demand of import will greater than export. There is also unusually high sell off and purchases in 2018. This declines in FDI due to low return in FDI since year 2015. Therefore, foreign investors not willing invest in U.S.

The FDI in year 2017 decrease compared to 2018 since U.S President which is Donald Trump quit from the Trans-Pacific Partnership (TPP) on January 2017. There is uncertainty and instability global economy policy during that time. The increases of instability or uncertainty will cause investor take more time in investment decision. When U.S quit from TPP which means that business in U.S will lose access to potential new markets. It will loss the opportunity to promote U.S export, reduce tax barrier (The Straits Times, 2017, February 01). Besides, TPP allow foreign countries putting tax barriers to U.S and allow to depreciate the currency of USD (Blackwill & Rappleye, 2017). The decrease in U.S export, foreigners put the tax barriers to U.S and depreciate in U.S dollar tend to decrease FDI in year 2017.

The decline of USFDI in year 2012 compared with year 2011 that shows in Figure 2. FDI drop as the fall in reinvest earnings and investment debt between the companies. There is highest amount is \$271525 million of dollar in 2015 Q1 which is show in Figure 4. The amount of FDI continuously decreases to 2015 Q3 which is \$103083 million of dollar.

There is a recession in year 2007 and it cause to housing market of U.S look like deserted or dry and have global financial crisis during year 2008 and 2009. Many of policy makers, investor and academic are feeling shock because of global financial crisis. The recession and global financial crisis cause the exchange rate decrease. The depreciation of exchange rate in U.S will increase the export of U.S as the purchasing power increase (Fang, Lai & Miller, 2006). It is because foreign countries demand more U.S goods due to they can convert more U.S dollar when U.S depreciate.

In Figure 1, FDI decline during year 2001 due to terrorist attacks. Terrorist attacks cause market or economy unstable and loss of foreign investor, loss of tourism, destroy the facility and increase insurance cost (Bandyopadhyay, Sandler & Younas, 2013) and provide negative impact to foreign investor. Terrorism affected international trade such as unstable of distribution system and damage of trade routes. The 911 attacks caused dollar-denominated decrease in short-run while foreign investors are less confidence to U.S and indirectly affect to U.S export (Aimable & Rossello, 2009).

Figure 1 represented FDI inflow in U.S. From Figure 1, there are lowest amount is \$8232 million of dollar in 1994 Q1. It is because U.S occurred Northridge earthquake in January 17, 1994. It is a 6.7 magnitude quake and it causes 57 of people death and about 9,000 of people injured. The Northridge earthquake lead the property damage more than \$20billion. The Northridge earthquake has a negative effect on U.S dollar. The loss of life, damage to major factories and distribution center will weaken the U.S dollar. In addition, the extra costs of clean up and reconstruction after the earthquake took away government and private spending that could have been used for economically advantageous enterprises. Therefore, U.S dollar has been devaluated but stimulates the exports (Asongu, 2012). It is because the foreign buyers can purchase the cheaper goods from U.S when the weakening of U.S dollar happened.

FDI develops an important role in one country economic growth (Alam & Shah, 2013). Decreases in FDI will influences economic growth. FDI consist of domestic

labor's training, therefore strengthening of human capital will lead to economic growth and can give effect directly and indirectly (Alam & Shah, 2013). There are some factors would affect FDI.

Level or uncertainty of EXR are affected FDI (Blonigen, 2005). EXR is act behalf of inflation and purchasing power of investor. Foreign investors tend to invest in weaker currencies of country as asset of host country cheaper than home country. It can define that the purchasing power of foreign investor is improved because the depreciation of currency and decrease EXR risk.

FDI decision affect by TAX. TAX can be an element that attractive of position for foreign investors to undertake investment. High TAX would reduce FDI. High property of tax might be decreases FDI demand. High pre-tax wages meaning of high personal income tax might be reduce FDI since capital and labour are complementary. Effect of taxation on the FDI can be in international and public economists. Difference type of FDI might be make a rejoinder with different taxation (Auerbach and Hasett, 1992).

EXP is one of the determinants that will affect FDI (Helpman, Melitz & Yeaple, 2003). EXP defined as a goods and services produced by home country are transfer to host country for sale purpose through international trade. FDI inflows lead to high growth rate of export. It means unemployment decrease and improve economic. FDI are effective uses of natural resources and lower of labour cost easier to stimulate EXP. Industrial linkage and spill-over effects might be happened through FDI in order promote export (Taplos & Ludosean, 2012). Therefore, export-oriented productivity by FDI in order to improve EXP.

In short, purpose of study is to investigate impact of macroeconomic factors of USFDI which are EXR, EXP and TAX.

Figure 1.2.1: USFDI in 1993 quarter 2 until 1999 quarter 2

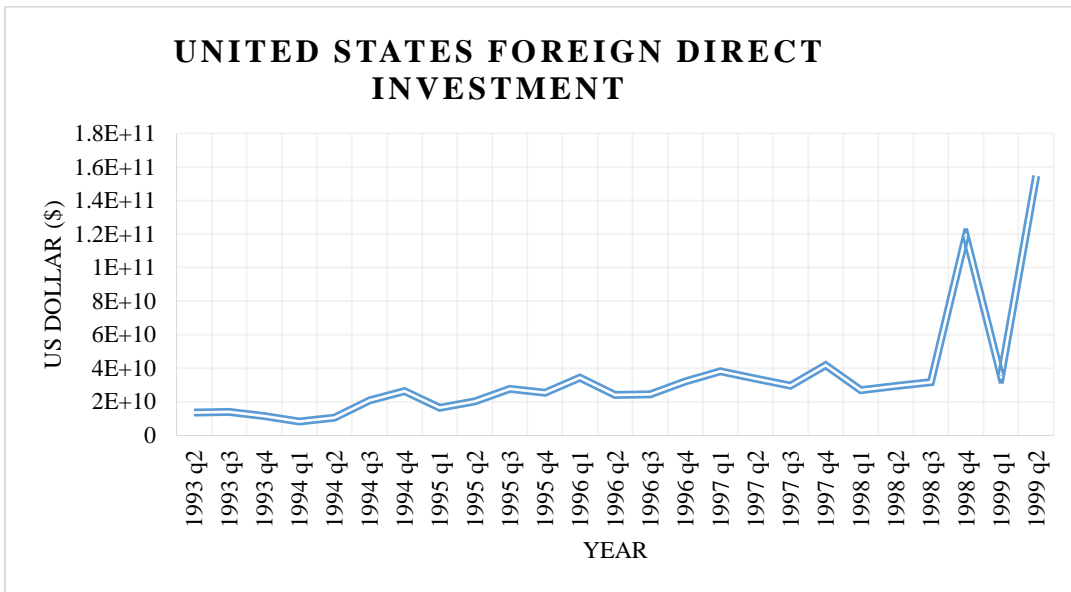


Figure 1.2.2: USFDI in 1999 quarter 3 until 2005 quarter 4

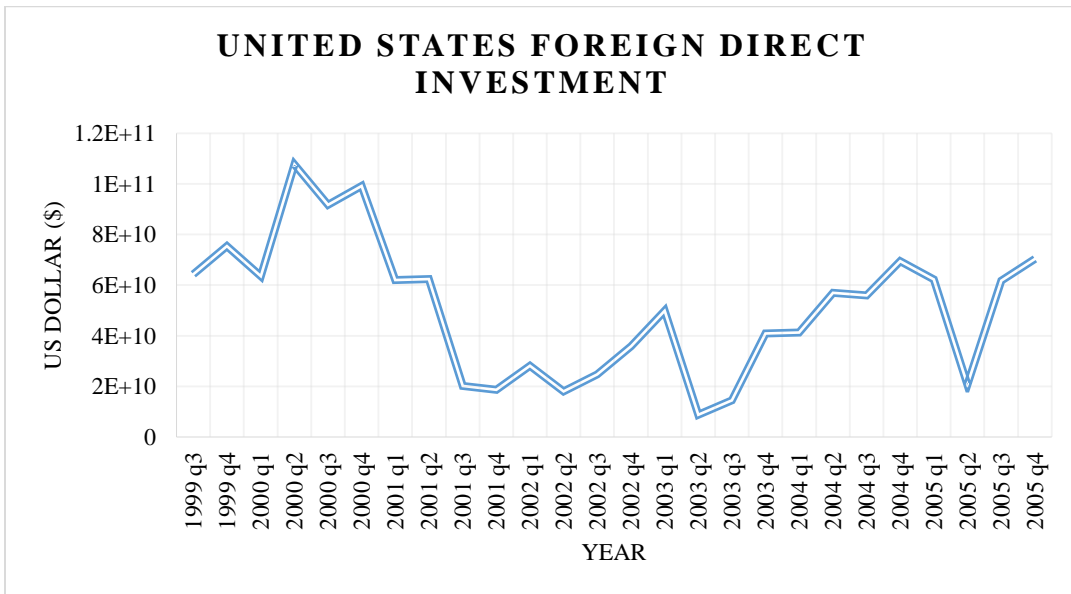


Figure 1.2.3: USFDI in 2006 quarter 1 until 2012 quarter 2

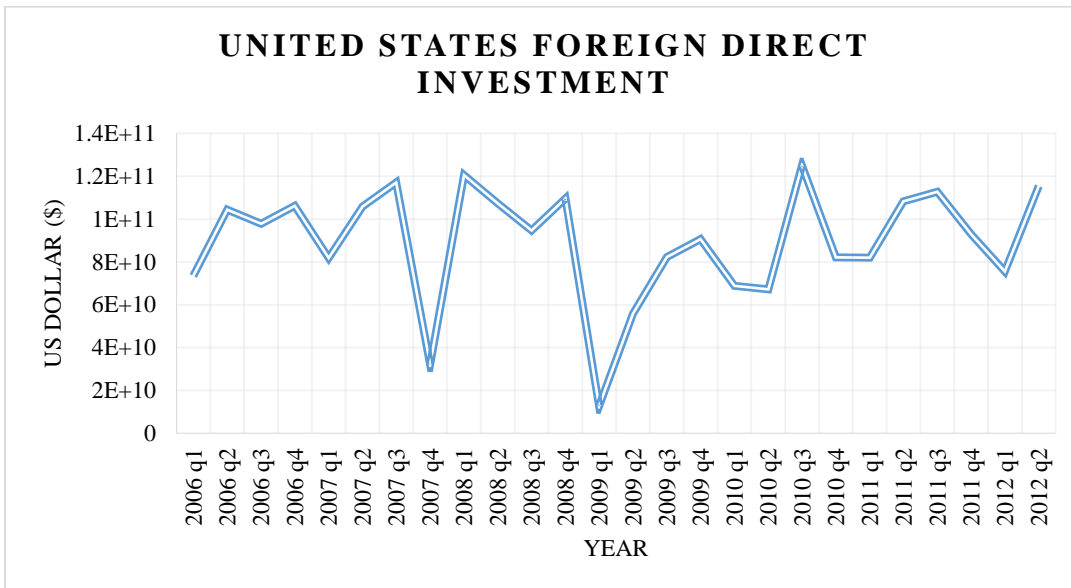
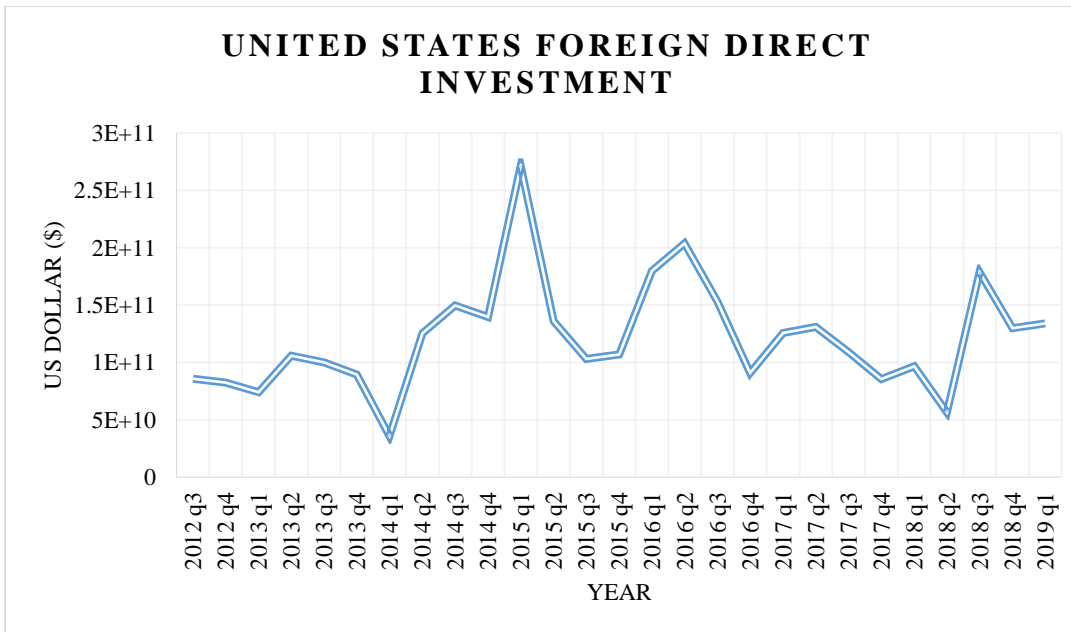


Figure 1.2.4: USFDI in 2012 quarter 3 until 2019 quarter 1



1.3 Research Objective

1.3.1 General Research Objective

To investigate the relationship between macroeconomic factor and FDI in United States.

1.3.2 Specific Research Objective

- (i) To investigate the relationship between taxation and FDI in United States.
- (ii) To investigate relationship between exchange rate and FDI in United States.
- (iii) To investigate the relationship between the export and FDI in United States.

1.4 Research Questions

1.4.1 General Research Question

What is the relationship between macroeconomic factor and United States FDI (USFDI).

1.4.2 Specific Research Question

- (i) What is the relationship between taxation and USFDI?

- (ii) What is the relationship between exchange rate and USFDI?
- (iii) What is the relationship between the export and USFDI?

1.5 Significance of study

TAX, EXP and EXR are independent variables for FDI. These variables have relationship with FDI that can give impact to economic growth directly and indirectly. Independent variables are very significant for the whole study since the greater the correlation between variables, the more entangled relationships between them. Therefore, if use multiple independent variables, must analyze them to select the smallest related variable to help in research.

Political stability of a country has been proven that it will affect the FDI in one's economy. It is a gap variable for this study. Nazeer and Masih (2017) mentioned political instability has prevailed in some countries over time. Political instability may shorten the horizons of policy makers, leading to poor terminology macroeconomic policies. In general, political instability will affect the investment environment. This in turn will reduce FDI inflows and lead to slow economic growth. Countries with uncertain political condition will be a major inhibitor (Pettinger, n.d.).

FDI is considered to be most important contributor to economic growth. This study will contribute to government institutions and business community in facilitating economic growth. Government should work to attract specific categories of FDI that have spill over effects in the overall economy. Federal Reserve Bank and Federal Government which are the policymakers and encourage them to know the study, as it allows them to understand which variables have had a major impact on USFDI.

U.S economic environment affect by Federal Reserve and the U.S federal government through fiscal and monetary policies. Federal government in the country use expenditures and income (taxes) to affect economy through the fiscal policy. By

using method of controlling supply and demand of money to stimulate economy monetary policy was use by Federal Reserve. Guidance or reference are provided from the study to the Federal Reserve and also federal government to formulate fiscal and monetary policies to meet direct investor preferences considering investing in U.S. These measures will useful to policymakers attract more FDI invest in country.

By study FDI, most of the university students, lecturer or researchers may learn to monitor the potential economic growth of the foreign country and determine the position compare among foreign countries. FDI can as a tool or way to overview the performance of foreign countries. Students can learn how to observe the economic condition before invest. They can investigate the restriction regulation of a country when government impose or remove the taxation either to decrease or increase FDI of country. Besides, can learn about when weaken or strengthen of currency will give what impact to FDI in a country. Lastly, the topic of FDI will give more knowledge to students, lecturer and researchers.

1.6 Chapter Layout

1.6.1 Chapter 1

Chapter 1 intends to study, discuss and introduce main issue and determine the problem statement. This study determines the objective and importance topic of conducting this study.

1.6.2 Chapter 2

Chapter 2 need discuss about literature review of the past study. Summarize for the past research work on what they know and determine conceptual framework will discuss in Chapter 2.

1.6.3 Chapter 3

Chapter 3 is part of methodology. This study need state term of design, sampling design, data collection method, constructed operational definitions, scales of measurement, and data analysis method.

1.6.4 Chapter 4

Chapter 4 is show result design by using data and methods mentioned in Chapter 3.

1.6.5 Chapter 5

Chapter 5 is regard discussion, conclusion and implications for this research. It requires summarizing the entire research, talking to key findings, and comment on decision makers and practitioners based on the findings. Pointed out limitations of this research and made recommendations for the next researcher to proceed.

1.7 Conclusion

This research paper point out the details and type of FDI and it definition, the motivation of FDI, and the way FDI operates. This research discussing three determinants of FDI, including TAX, EXR, and EXP. This research explained purpose of this study-to understand the determinants of USFDI to improve future performance. Besides, the findings from this study are contributing enable policymakers to better understand factors affecting FDI in order to develop appropriate policies. Furthermore, this research explained chapter layout of the study. Subsequent this research will continue the literature review. Past researchers have examined the connection between FDI and these three determinants, and summarize them in next chapter.

CHAPTER 2: LITERATURE REVIEW

2.0 Introduction

This chapter summarized previous research related to the determinants of FDI. This can establish a better understanding on the nature and relationship between FDI, TAX, EXR and EXP. Using models from previous studies, this study was capable to establish a new proposal framework for this research.

2.1 Prior Empirical Studies Review

2.1.1 Export

The theory of international trade and FDI has inspected the relationship between foreign direct investment and exports. In establishing the relationship between FDI and international trade, two different views were put forward. Some people think that FDI and EXP were substitutes for each other; the other regards the two as complementary.

EXP was defined as “removing and replace the goods and services from one country to another country (Law of Republic of Indonesia, 2006). EXP showed positive relationship in both short-run and long-run between FDI and EXP. EXPs were highly sensitive to GDP and real effective EXR in short-run and tend to increase in long-run through FDI (Samantha & Liu, 2018). The importance of these findings in consolidating the development of the region

and international trade was crucial to the current discussions in the region (Selimi, Reci & Sadiku, 2016).

Moreover, it was important for government to focus on the worth-add EXP by EXP-oriented strategies in the economy since EXP can raise the monetary growth (Khalid, 2017). The increases of EXP will increase the GDP, and will tend to increase the FDI and also economic of a country. The results showed that increasing EXP in the short term has a significant positive correlation. When the EXP rate was high, the country's FDI will increase. In order to make the feasibility of FDI viable and dynamic, people must jointly understand and implement a proactive strategic system that should be combined with local efforts to promote growth (Prasanna, 2010).

On the other side, the relationship between EXP and FDI can also be negative. The co-integration relationship between FDI, economic growth, energy consumption and EXP showed a negative correlation between long-term and short-term FDI, GDP and EXP (Khaled & Mohd, 2016). As sometimes, the share of trade in total sales will negatively affected the transport cost and trade barriers.

2.1.2 Exchange Rate

From a macroeconomic perspective, FDI can be said to be a win-win strategy. It reduces the production costs of local firms, and importantly, although fluctuations in FDI reduce welfare throughout the business cycle, it can promote economic expansion into the country. The relationship of FDI and EXR was important as the impact of EXR changes and the fluctuations in FDI inflows have both produced economic and FDI impacts on the host country (Lee & Min, 2011).

Throughout the economic cycle, there was a positive correlation between FDI and EXR, as when the country's currency appreciates, the country often receives more FDI inflows. When a large number of currency appreciation shocks eventually lead to an increase in the future value of the return of profits, expecting that there will be a positive signal between FDI and the EXR (Deseatncov & Akiba, 2016).

The depreciation of a national currency will reduce the cost of production in the country, but if foreign companies tend to convert their profits back to foreign currencies, it may cause the national currency to depreciate (Tomlin, 2018). It checked that the depreciation of the national currency will lead to high prices entering the country's market. However, when the appreciation of the national currency may increase FDI, it was because foreign investors general prefer to invest in countries where the national currency will appreciate against the other currency.

On the other hand, some researchers abnormally found signs of a negative relationship between the EXR and FDI, which indicates that FDI will increase when the national currency depreciates, which may be due to the relative currency depreciation (Takagi & Shi, 2001). When a country's currency depreciates, the wealth of foreign investors will increase, and the cost of investment in the country of origin in money terms will decline, which will allow them to finance more investment.

Moreover, it showed a negative relationship between FDI and EXR especially on those countries with major economies and export activities, for example, China (Ngowani, 2012). There was a negative relationship between FDI and EXR, which may slow down the economic growth, due to the appreciation of China's currency, transaction costs will be higher.

2.1.3 Taxation

The link between FDI and TAX was a very hot topic for past few years. The result of the negative causality between FDI and TAX were conducted by a lot of researchers, whether short-term, long-term, or both. The net return of capital affected by TAX, at least in the minds of many policy makers, and capital flows between countries should be affected. (Morisset and Pirnia, 2000).

A negative relationship result between TAX and FDI since it will reduce the potential profit margin when high income tax and also harm to FDI as the ultimate motivation to conduct capital investment was to generate profit (Eshghi, Eshghi & Li, 2016). Obeng (2014) have the same view which there was negative relationship between FDI and TAX due to corporate tax cuts effect on FDI inflows into specific sectors of Ghana in the mining, manufacturing, and services industries. It will let the net profit on these three industries with the changes of the tax rate affected or decreased.

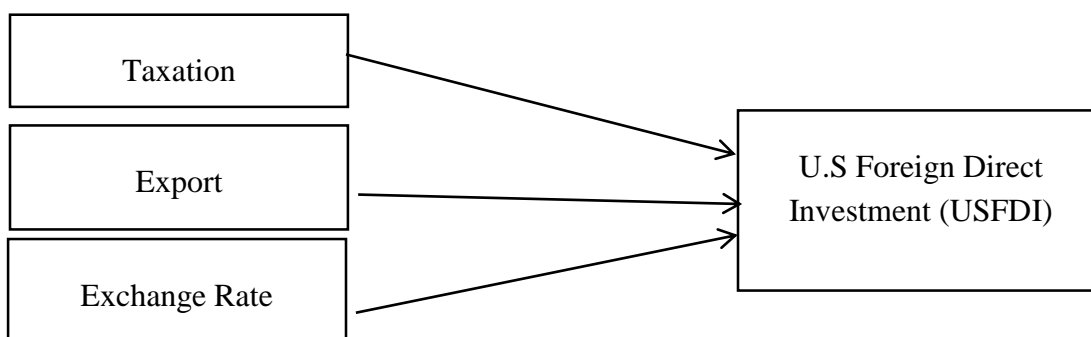
Besides that, there were also some reason discovered that corporate tax rates have played a significant role and showed a negative effect on the company profitability of all sizes was provided. The standard view on international capital holds that high-tax countries have lower FDI equilibrium stocks, but because of higher marginal returns and higher tax rates, marginal investment has contributed more to TAX than low-tax countries through Becker and Fuest (2012) which investigated the relative importance of corporate TAX on the qualitative and quantitative effects of FDI. Higher capital income taxes encourage international investment to flow from higher taxation countries to lower taxation countries (Stacie & Alexis, 2011). It showed a negative relationship between FDI and TAX since the government's relatively high capital gains tax will rises overseas investment but attract less international investment. This evidence provides more support for this view, and when

changing tax policies, the government has good reasons to consider the effect of tax policies on the attractiveness of its country to investment flows.

In the opposite side, some of the research argued that TAX plays an important role in term of actual tax rates to attract FDI. The TAX of multinational corporations was based on TAX issues. In the real economic situation, the government was competing to attract multinational corporations and confirming proper tax treatment has become a global phenomenon. They concluded that tax level in Romania does not prevent FDI. Instead, FDI was stimulated by the ultimate increase in taxes based on Talpos and Ludosean (2012) which investigated the effects of tax upon FDI in Romania. They suggested there was a positive relationship between FDI and TAX.

2.2 Review of Relevant Theoretical Framework

Figure 2.1: Theoretical Model



Adapted from: Blonigen, B.A. (2005). A Review of the Empirical Literature on FDI Determinants. *Atlantic Economic Journal*, 33(4), 383-403.

Based on model from Blonigen (2005), this study remodelled the model into:

$$USFDI_t = \beta_0 + \beta_1 EXP_t + \beta_2 EXR_t + \beta_3 TAX_t$$

The chart above showed the theoretical model by Blonigen (2005). This study explores the effect of taxation, export and exchange rate towards FDI in U.S. While TAX, EXP and EXR are independent variables for USFDI and USFDI is dependent variable. According to Blonigen (2005), TAX is income tax of U.S, EXP is export of U.S and EXR is real exchange rate.

EXP refer the indicator for EXP. In theory, an open economy usually creates greater market opportunities. EXP is crucial to a country's FDI. This suggest that one EXP through FDI, foreign market's demand tend to increase (Moosa & Cardak, 2006).

EXR refers to indicator for EXR. When decrease in the EXR of country, it will more investor active in FDI (Hara & Razafimahefa, 2005). This is what foreigners investor wish. Since they wish get the higher return with lower capital to invest in countries when the country's EXR they invest will appreciate in the possible future.

TAX refers to indicator for TAX. Government should reduce the tax to attract more FDI, and reduce unemployment rate while increase productivity tend to raising economic growth. (Raff & Srinivasan, 1998).

2.3 Hypotheses Development

- (i) H_0 : Do not have relationship between all independent variables and FDI in U.S in the model.
 H_1 : Have relationship between all independent variables and FDI in U.S in the model.
- (ii) H_0 : $\beta_1 = 0$ (Do not have relationship between EXP and USFDI.)
 H_1 : $\beta_1 \neq 0$ (Have relationship between EXP and USFDI.)
- (iii) H_0 : $\beta_2 = 0$ (Do not have relationship between EXR and USFDI.)

$H_1: \beta_2 \neq 0$ (Have relationship between EXR and USFDI.)

(iv) $H_0: \beta_3 = 0$ (Do not have relationship between TAX and USFDI.)

$H_1: \beta_3 \neq 0$ (Have relationship between TAX and USFDI.)

2.4 Conclusion

This chapter presented review of literature and past studies on FDI. The proposed conceptual framework of the three independents variables which constituting of EXP, EXR and TAX and dependent variable has been developed. This research will collect observations of these indicators from a reliable database. Besides, this study will be careful to plan method in the study to obtain appropriate analysis and prove that these assumptions are correct and accurate.

CHAPTER 3: METHODOLOGY OF RESEARCH

3.0 Introduction

Methodology refers to the theoretical analysis of systems corresponding to the methods used in the research field. It involves theoretical analysis of methods and principles related to the branch of knowledge. Generally, includes examples, theoretical models, stages and concepts such as quantitative or qualitative techniques (Irny & Rose, 2005). The research will enumerate the various steps that are often taken when studying the determinants of FDI and the logic behind it.

3.1 Research Design

The study applies research design as guidance and use quantitative research to conduct the study. Quantitative research is an investigation by gathering all information, quantifying and analysis data in large population and result can describe into numerical data and statistical in order to answer question. Under these circumstances, research is to investigate any relationship exist between USFDI and EXP, EXR and TAX. EXP as measured by international trade and labor productivity (Demirhan and Masca, 2008). EXR as measured by real EXR (Blonigen, 2005), TAX is measured by corporate income tax (Raff and Srinivasan, 1998), while dependent variable which is FDI is determine as FDI inflow in U.S.

Quantitative research can define as collection of data in mathematical term and statistic in order to solve problem or question (Apuke, 2017). Quantitative research can divided into several types (Apuke, 2017). One of the quantitative research is survey research. Survey research includes scientific sampling methods and designed

questionnaires to measure demographic characteristics using statistical methods (Apuke, 2017). Correlational research use to determine the connection between variables in population. Experimental research means that treatment of study group's intervention and estimate the result of treatment. The causal-comparative research checks out and study the problem by reviewing the variables. Research design can separate into exploratory research and descriptive research. Exploratory research leads better understanding about problem involve investigate a problem by not really clearly. Descriptive research is used on the facts to describe accurately and clearly in a population.

3.2 Data Collection Methods

This research investigates impact of independent variables on USFDI, and received the data on EXP, EXR, and TAX indicators from Federal Reserve database. This study applied annual time series data from 1993 Q2 until 2019 Q1 in this research, which included 104 observations. FDI per U.S\$ is applied as a substitute for domestic investment, TAX are an indicator of TAX rates. Effective EXR is an indicator of EXR. This study use EXP of FDI as trade agents.

In research project, quantitative study was conducted. Quantitative study represent numerically which is a social study using empirical methods and statements (Cohen, 1980). Quantitative research is defined as interpretation of appearance when the quantitative data was collected and it is analyzed by using method of mathematical-based (Sukamolson, 2005).

Time series data is a collect the value observations collected by variables over time (Gujarati & Porter, 2009). Time series data are applied by this research to the study because the data was collected regularly from 1993 to 2019. All data used by this study was secondary. This research use secondhand data because more economical and time saving.

3.3 Data Processing

The research frequently reviews, update, and compile data to ensure the correct data is selected. This research is earn fully supported and justified by past researchers when indicators chose by this study have done by past research. When the data was collect by this study, this research need to reconfirm the data and also all indicators used were consistent with the indicators used by researchers previously. When some Fed data contains data from the 1993Q2 to the 2019Q1 to obtain 104 observations, this research must make some modification to ensure that all observations have same observation year. Besides, this study enter data collect before into E-views software, and checked multiple time to ensure the number no errors for the purpose of increase the accuracy of data before make any analysis.

3.4 Data Analysis

E-views will use in order to get the result of the regression analysis.

3.4.1 E-views

This research will use E-views software get the consequence of general statistical software packages for data and also the econometric analysis. Besides, E-views will merge spreadsheet and relational database technology with common tasks. It also can use in conjunction with a programming language that uses the Windows GUI to display limited object orientation (Renfro, 2004). E-view can display information and estimate regressions regard each estimated coefficient in electronic view result (Startz, 2009). It also can provide many abstract information based on each estimation equation.

3.4.2 Multiple Linear Regression

Tranmer and Elliot (2008) given a set of p explanatory variables (X_1, X_2, \dots, X_p). Multiple Linear Regression is performed to forecast value of dependent variable, Y while independent variables serve as explanatory variable. The equations for the multiple linear regression model as follows:

$$Y = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + \mu_i$$

Few dependent variables can only be interpreted by one variable. In this case, the analyst uses multiple regression try to use multiple independent variables to explain dependent variable. This research chose to apply multiple linear regression models rather than simple linear regression models due to estimates are not just related to an independent variable that affects them. Therefore, multiple linear regression models are applied to guarantee estimates don't deviate from tangible achievements. To obtain fairly accurate estimate, this study involved three variables into estimation model. The lesser the variables that are neglected from the estimate, the more precise the results. The following is an estimated economic model formed in this study:

$$FDI_t = \beta_0 + \beta_1 Export_t + \beta_2 ExchangeRate_t + \beta_3 Taxation_t$$

One of function of multiple linear regression is the parameter (β_k) in model should be correlation and linear between independent variables are low. This is to avoid this study from getting biased information when there are highly correlated between two independent variables.

There are biased regression coefficients for β_1 and β_2 (with two predictors) in multiple linear regression model. Biased regression coefficient shows how about dependent variable (Y) in model was affected by the independent variables (X_i), while remaining variables remain unchanged. Instead, it is best to use adjusted R^2 instead of R^2 when want to check whether the multiple

linear regression have meets the data or not. This is due to R^2 never reduce when there are increase number of independent variables in the regression model.

3.4.3 F-test Statistic

F-test includes some parameters, opposite with T-test which only contains one parameter in null hypothesis. F-test generally considered to be an improvement over general likelihood ratio test (LR) and extensive sample chi-square test. F-test can use in specific cases where error terms in regression model are normally distributed.

This research defines p-value that indicates the likelihood that someone will get a result by accident through statistical F-test analyzes data. Therefore, if probability of accidentally obtaining an observed difference is less than 1% (0.01), 5% (0.05), or 10% (0.10), null hypothesis will be rejected and discover it is important throughout the model and illustrate dependent variable in entire model about infer crucial.

3.4.4 T- test Statistic

T-test is a hypothesis testing tool between two differences set of data. T-test is a forceful test between two difference of group or independent variables (Sawilowsky & Blair, 1992). T-test analyzes and compares two means to define whether they are from same population. It needs to assume two set of data are normally distributed and having equal variances.

T-test statistic determines p-value, which stands for probability of having chances in result of sample data. It can define that p-value determines the

result of significance between the independent variables and dependent variables. If p-value are less than significance level of 1% (0.01), 5% (0.05), or 10% (0.1), null hypothesis will be rejected in the model.

3.4.5 Diagnostic Checking

This study performed some hypotheses tests to determine and define whether model is no provide multicollinearity, autocorrelation, heteroscedasticity problems to avoid econometric issues in model and also apply model specification and normality test in model.

3.4.5.1 Model Specification and Normality Test

Model Specification

One of assumptions of CLRM, the model was no have specification bias. When there is ellipsis of corresponding independent variables, inclusion of irrelevant or unnecessary independent variables and misspecification of the functional form of a regression model, error of measurement, outliers, leverage and influence data etc means that the specification bias will happen. Error in specifying a model correctly will bring to impure serial correlation, which subsequently affect the efficiency of OLS estimators and validity of hypothesis testing. Ramsey Regression Equation Specification Error (RESET) are used to reveal model specification bias (Gujarati, 2015).

Hypotheses for Model Specification:

H₀: The model is correctly specified.

H₁: The model is not correctly specified.

Decision Rule: Reject H₀ if p-value smaller than 5% significance level.

Otherwise, do not reject H₀.

Decision: When p-value is greater than the significant level 0.05(5%), so do not reject H₀.

Conclusion: There is sufficient evidence to conclude that the model is correctly specified.

Normality

One of the hypothesis of the normality of model CLRM is disturbance must be normally distributed to perform hypothesis testing for significance of individual independent variables and model. Jarque-Bera (JB) normality test is investigating possibility of data to be normally distributed. The classical skewness (symmetry measure of population regression function) and kurtosis coefficient (measure of how high or how much for the normal distribution is) are used in JB normality test. A variable with skewness of zero and kurtosis of 3 is normally distributed (Gujarati & Porter, 2010). CLRM assumptions mention error term is normally distributed $\mu_i \sim N(0, \sigma^2)$. Normality test are adapting to test whether sample data is proper modelled. Jarque-Bera (JB) normality test is one of normality test to analyze the possibility of the data to be normally distributed. Based on OLS estimators, this is an asymptotic analysis. (Gujarati, 2004).

Following is the test-statistic for Jarque-Bera test:

$$JB = n \left[\frac{S^2}{6} + \frac{(K - 3)^2}{24} \right]$$

Where,

n = number of observation

S = skewness coefficient

K = kurtosis coefficient

Hypotheses for Normality of Error Term:

H_0 : The error term is normally distributed.

H_1 : There error term in not normally distributed.

Decision Rule: Reject H_0 if p-value of Jarque-Bera is smaller than 5% level of significance. Otherwise, do not reject H_0 .

Decision: When p-value is more than significant level 0.05(5%), do not reject H_0 .

Conclusion: There is sufficient evidence to conclude that there is normally distributed of the error term.

3.4.5.2 Multicollinearity

When one or more precise collinearities are present between independent variables and linear relationship among regresses means that multicollinearity occurs. Based on the CLRM assumptions, it must have no exact collinearity and no precise linear relationship between independent variables (Daoud, 2017). As for the case of imperfect collinearity, although severe imperfect collinearity would not violet the assumption mentioned above, it can still cause substantial problems (Studenmund, 2014). In fact, the presence of multicollinearity do not violet the unbiasedness and efficiency of OLS estimators, hence, the estimators are still BLUE. However, estimators might

have larger variance and standard deviation, which consequently leading to lower t-statistic and wider confidence interval (Gujarati & Porter, 2010). Severe multicollinearity problems can detect when there are few significant independent variables but model is significant and consists high R-squared (more than 0.9). Variance Inflation Factors (VIFs) is exceeding 10, and show that there are severe multicollinearity problems in the model (Studenmund, 2014). By solve multicollinearity, this research can drop collinear independent variables, acquiring new data or larger sample size, but it may bring issue by using all these remedial. In order to measure multicollinearity, this study will use high R square and also few t-ratio which are significant to compute VIF and high pair wide correlation method to detect (Gujarati, 2004).

VIF = 0	No multicollinearity
$1 < \text{VIF} < 10$	No serious multicollinearity
VIF > 10	Serious multicollinearity

3.4.5.3 Autocorrelation

The term autocorrelation can be imply because interference terms from one-time period depends on interference terms from another time period in systematic way. It defined as “correlation between the observations members sorted chronologically (such as time series data) or spatially (cross-section data).” Generally, there are two types of autocorrelation, including spatial correlation occurs in cross-sectional data and serial correlation happens in time series data (Gujarati & Porter, 2010). Pure serial correlation occurs when correlation between observations of the error term while impure serial correlation happens when specification bias in model (Studenmund, 2014).

Some methods to detect autocorrelation which include formal and informal ways. Informal way is Graphical method, while formal include Durbin-Watson d test, Durbin-Watson h test and Breusch-Godfrey (BG) test to detect autocorrelation. Autocorrelation should be taken care of it, depending on severity as standard error of OLS estimators could be severely biased, resulting in misleading conclusions drawn. Solve autocorrelation problem by applying first-order difference transformation, generalized transformation, and Newey-West method to correct OLS standard error (Gujarati, 2011).

Hypotheses for Autocorrelation

H_0 : The model is not consisting autocorrelation problem.

H_1 : The model is consisting autocorrelation problem.

Decision Rule: When p-value of Chi-square is smaller than 5% level of significance will reject H_0 . Otherwise, do not reject H_0 .

Decision: P-value is more than the significant level 0.05 (5%), so do not reject H_0 .

Conclusion: There is sufficient evidence to conclude that there was not consists of autocorrelation problem in the model.

3.4.5.4 Heteroscedasticity

Heteroscedasticity is unequal scatter and happen when variance of error term differs among observations. It states observations of error term should have constant variance (homoscedasticity). It caused OLS estimators no longer BLUE. Although heteroscedasticity problem does not violet the unbiasedness of the estimators, they are no longer efficient, where variance of estimators is

not minimum. Consequently, the standard deviation of estimators will bias and cause t-ratio and F-ratio be invalid (Studenmund, 2014).

Gujarati & Porter (2010) stated there are formal way and informal way to define heteroscedasticity. For informal way to define heteroscedasticity is through graphical examination of residual method and problems happen in nature. In order to detect heteroscedasticity through formal way are includes test of Park Test, Autoregressive Conditional Heteroscedasticity (ARCH), Glejser, White General Heteroscedasticity, and also Breusch-Pagan. Purpose of solving the problem of heteroscedasticity, this research can apply Weighted Least Square (WLS) and Generalized Least Square (GLS).

Hypotheses for Heteroscedasticity:

H_0 : There is no heteroscedasticity problem in the model.

H_1 : There is heteroscedasticity problem in the model.

Decision Rule: Reject H_0 if p-value of Chi-square is smaller than 5% level of significance. Otherwise, do not reject H_0 .

Decision: Do not reject H_0 since the p-value is more than the significant level 0.05(5%).

Conclusion: There is insufficient evidence to conclude that the model consists of heteroscedasticity problem.

3.5 Conclusion

After identifying the data and methods the study chooses to use, data collect by this research will analyze in Chapter 4 by using OLS estimator and get result through E-views.

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

Consequence of analysis through E-views regarding the data collected for the research will done in this chapter. Multiple linear regression methods used to analyze the data. It will define independent variables which are EXP, EXR and TAX that are significantly affected the dependent variable, USFDI.

4.1 Empirical Result of Model 1

The study obtained data from 1993Q2 until 2019Q1 and this research run model through E-views and results obtain below:

Model 1: $USFDI_t = \beta_4 + \beta_5 EXP_t + \beta_6 EXR_t + \beta_7 TAX_t$

$$USFDI_t = -8.44E+10 + 0.0430788EXP_t + 5.28E+10EXR_t + 0.231753TAX_t$$

$$se = (3.09E+10) \quad (0.124740) \quad (3.01E+10) \quad (0.096358)$$

$$p\text{-value} = (0.0075)^* \quad (0.0008)^* \quad (0.0827)^* \quad (0.0180)^*$$

n = 104 $R^2 = 0.534353$ Adjusted $R^2 = 0.520383$ Prob (F-statistic) = 0.000000

*significant at 0.10 significant level

To ensure error terms are normally distributed, no issue with multicollinearity, heteroscedasticity, autocorrelation, correct model specifications, the research conduct diagnostic test regression by obtaining empirical results from multiple linearity.

4.1.1 Diagnostic Checking of Model 1

Table 4.1: Summary of Diagnostic Checking of Model 1

Hypothesis Testing		p-value	
1.	Jarque-Bera normality test	0.000000	
2.	Ramsey's RESET test	0.9582	
3.	Multicollinearity		
3.1 Correlation and Variance Inflation Factor (VIF)			
Independent Variables		Correlation	VIF
EXP	EXR	-0.30770	1.10923
EXP	TAX	0.85586	3.66865
EXR	TAX	-0.23135	1.06022
4.	Autoregressive Conditional Heteroscedasticity (ARCH) test	0.8722	
5.	White's Heteroscedasticity-consistent Variances and Standard Errors	0.0000	
6.	Breush Godfrey LM test	0.0208	

Jarque-Bera normality test is to test error terms are normally distributed or not in the model. Since p-value is 0.0000 less than $\alpha=0.10$, shows the model are not normality distributed in error terms.

This research wants to determine the model specification was correct or not by using Ramsey's RESET test and showed p-value was 0.9582 higher than $\alpha=0.10$. this study indicate the multiple linear regression model was correct specification.

Next, this study proceeds to multicollinearity testing. By adding on the high R-square value, the independent variables were found to be significant and determine which variables are highly correlated by calculated correlation test and VIF. Table 4.1 above showed there are low correlation and low VIF between all independent variables. The

correlation and VIF for taxation and exchange rate are -0.23135 for correlation and 1.0622 while export and exchange rate has -0.30770 for correlation and 1.10923 for VIF and for export and taxation has 0.85586 and 3.66865 for correlation and VIF and show there was no serious multicollinearity problem since VIF at the range of 1 and 5.

Hypothesis checking is required to detect heteroscedasticity problem and autocorrelation issue. This Research use ARCH test to detect heteroscedasticity problems. Besides, this research use Breusch-Godfrey LM test to detect autocorrelation problem. 10 lag lengths in heteroscedasticity and autocorrelation problems are used by this study and choose p-value with the lowest AIC from the lag to do decide.

P-value is 0.8722 (using ARCH test) and larger than critical value, α which is 0.10 and result show that model was free from heteroscedasticity problem. However, p-value in model only 0.0208 less than the significant level of 0.10 for autocorrelation. This research conclude model is free of heteroscedasticity however has autocorrelation issues when using hypothesis testing methods. To minimize the risk of heteroscedasticity problems in model, the research tested the probability of 0.0000 when use the method of White's Heteroscedasticity Consensus Variance and Standard Error.

In short, this model was found to have error terms and not normal distributed. Contradict, this model was tested to have correct specifications, no multicollinearity and heteroscedasticity issue, but had the autocorrelation problem.

4.2 Interpretation of Model 1

In model 1, there was no multicollinearity, heteroscedasticity problems, but there was an autocorrelation problem.

4.2.1 Interpretation of Model 1 Result

$$\text{USFDI}_t = \beta_4 + \beta_5 \text{EXP}_t + \beta_6 \text{EXR}_t + \beta_7 \text{TAX}_t$$

$$\text{USFDI}_t = -8.44\text{E}+10 + 0.0430788\text{EXP}_t + 5.28\text{E}+10\text{EXR}_t + 0.231753\text{TAX}_t$$

$$\text{se} = (2.78\text{E}+10) \quad (0.134295) \quad (3.04\text{E}+10) \quad (0.087728)$$

$$\text{p-value} = (0.0031)^* \quad (0.0018)^* \quad (0.0856)^* \quad (0.0096)^*$$

$$n = 104 \quad R^2 = 0.534353 \quad \text{Adjusted } R^2 = 0.520383 \quad \text{Prob (F-statistic)} = 0.000000$$

*significant at 0.10 significant level

According to results of E-view, independent variables are exports (EXP), taxes (TAX), and exchange rates (EXR) are significant since p-value less than $\alpha=0.10$. Entire model 1 is valid because critical value is 0.10 more than p-value which is 0.000000. The adjusted R^2 is 52.0383% of the USFDI change and USFDI can explain by total changes in exports (EXP), taxes (TAX), and exchange rates (EXR) consider to the sample size and number of independent variables. The following table shows the interpretation of important independent variable estimation coefficient values.

Table 4.2.1: Interpretation of Significant β_s of Model 1

β_s	Interpretation
β_4	Value of -8.4400000000 is intercept of the line. This value can indicate United States FDI is -844% when level of export (EXP), taxation (TAX), exchange rate (EXR) are 0. But, this intercept value can be ignored and not meaningful.
$\beta_5 = 0.0430788$	When export (EXP) predict to rise by 1 unit, United States FDI (USFDI) will increased by 4.30788%, holding other constant variables.
$\beta_6 = 5.28\text{E}+10$	When exchange rate (EXR) predict to rise by Euro (€) per US\$1,

	United States FDI (USFDI) will increased by 528%, holding other constant variables.
$\beta_7 = 0.231753$	If taxation (TAX) predict to rise by 1 unit, United States FDI (USFDI) will increased by 23.1753%, holding other constant variables.

4.3 Conclusion

This research conclude Model 1 can solve problem of multicollinearity and heteroscedasticity for export (EXP), exchange rate (EXR) and taxation (TAX) and believe that export (EXP), taxation (TAX) and exchange rate (EXR) significant affect United States FDI (USFDI) and have relationship with United States FDI (USFDI) at $\alpha=0.10$. Export (EXP), exchange rate (EXR) and taxation (TAX) have positive relationship with United States FDI (USFDI).

CHAPTER 5: DISCUSSIONS, IMPLICATIONS AND CONCLUSION

5.0 Introduction

In this chapter, this study will review research that has been carried out. This research will compare main findings with past research papers. The empirical test findings derived from data analysis are presented and limitation and directions of future research are discussed.

5.1 Summary of Statistical Analyses

This research carried out the correlation test and VIF to detect multicollinearity problem in Chapter 4. The result showed there are low correlation and VIF between all variables. Therefore, this study stated there is free from serious multicollinearity problem.

This study proved model specification was correct of multiple regression model. The model free from heteroscedasticity problem after this research applied ARCH test. However, the model contains autocorrelation problem when using Breusch-Godfrey LM test. In order to detect heteroscedasticity and autocorrelation problems, this research use maximum 10 lag and choose p-value with lowest AIC to make decision. This research tried to use White's Heteroscedasticity-consistent Variances and Standard Errors to test and probability shows the result is 0.0000 in order to minimize risk of heteroscedasticity problem in model.

Model 1 is model as free from multicollinearity and heteroscedasticity problem for EXP, TAX and EXR significant affect USFDI and have relationship with USFDI at significant level of 0.10. EXP, EXR and TAX have positive connection with USFDI.

Table 5.1: Decision for the Hypothesis of the Study

	Hypothesis of the study	Decision
i.	H ₀ : All independent variables and FDI inflow in U.S are not relationship. H ₁ : At least one independent variable has relationship with FDI inflow in U.S.	Reject H ₀
ii.	H ₀ : EXP and FDI inflow in U.S do not have relationship. H ₁ : EXP and FDI inflow in U.S have relationship.	Reject H ₀
iii.	H ₀ : EXR and FDI inflow in U.S do not have relationship. H ₁ : EXR and FDI inflow in U.S have relationship.	Reject H ₀
iv.	H ₀ : TAX and FDI inflow in U.S do not have relationship. H ₁ : TAX and FDI inflow n U.S have relationship.	Reject H ₀

5.2 Policy Implication

The result of study reveals that EXP, EXR and TAX show a positive significant relationship between the USFDI.

5.2.1 Export

EXP of U.S has relied on U.S trade policy which help the EXP promotion and controls. U.S government will support for EXP financing, market research, licensing and control of strategic EXP (U.S Trade Policy, 2019).

FDI and EXP as important factor which help to boosts economic growth of one country and this has attracted many researcher interest and attention (Teodora & Marinela, 2011). Shawa & Shen (2013) stated FDI and EXP can consider as main determinants of economic growth for some of Asian countries. Inflow of FDI can rises host's country's EXP capacity, and will help to increase its foreign exchange earnings for those developing countries (Ebitare & Lyndon, 2016). FDI will stimulate economic growth and increase export of a country. Azam (2010) showed influences of exports and FDI are statistically significant. Based on result tested by Haseeb, Hartani, Bakar, Azam, & Hassan (2014), showed that FDI has significant determinant of EXP performance for the development markets. Ebitare & Lyndon (2016) stated most of studies concluded FDI and EXP show a significant relationship that stimulate growth in economy.

5.2.2 Exchange Rate

U.S has applied freely floating EXR system which country EXR fluctuate based on supply and demand in market (Zucchi, 2019). U.S government may influence their currency in different way base on their country's economic condition. For instance, changes of Federal Reserve rate and central bank may intervene or control the money supply in foreign exchange market to control currency value (Amadeo, 2019).

This study reveals that EXR has positive significant relationship between the FDI. Shetty, Manley, & Kyaw (2019) stated number of studied has carried out the statistical analysis of USFDI and U.S dollar. This showed that it has existence of correlation between EXR movements and FDI. EXR risk probably leads to expected real EXR appreciation, this help to reduce foreign cost of capital and may attracting more FDI (Balaban, Zivkov, & Milenkovic, 2019). This is because firms only decide invest abroad when expected returns is equal to cost-plus payment for risk derived from EXR volatility. Xing (2006) stated devaluation of EXR may help to boosts the FDI. For instance, devaluation of Chinese Yuan had stimulated USFDI. It will reduce the cost of Chinese labour, other productive inputs relative to foreign production costs and domestic assets such as land. Hence, this help to reinforce China's comparative advantage and strengthen its competitiveness to attract FDI.

5.2.3 Taxation

Tax Cuts and Jobs Act (TCJA) is the tax policy for U.S in this recent year. It was introduced in year 2017. This policy is the most important set of changes in past few years for U.S. This policy includes reducing the tax rates for business and individuals. For instance, increase the standard deduction, increase family tax credits, reduce number of estates impacted by estate tax and so on (Floyd, 2020).

Based on research, TAX showed positive significant relationship between FDI. Beck & Chaves (2011) stated taxation policy of one country can either attract or chase off FDI. Wage to employers could cause domestic firms to substitute capital for labour when the income and consumption taxes increase, hence the result is it will reduce the corporation funds invest abroad. In the studied of how taxes affect financial services FDI, banking FDI is determined by host

country taxes (Huizinga, Voget, & Wagner 2014). Overesch & Wamser (2009) stated financial sector FDI is most responsive to TAX. Return on investment available for shareholder will reduced because of corporate income tax. Lower tax host country only associated with higher residual income and can distribute to parent firm (Merz, Overesch, & Wamser, 2017).

TAX reduction and subsidy are most common alternatives to affect FDI (Tian, 2018). Higher TAX will probably chase off FDI, but if with correspondingly higher subsidy will probably accelerate investment. Meanwhile, if country with higher TAX, it need to have higher subsidy as well if government of country wants to boosts their FDI. But in real life, it is less likely that government will provide a full investment subsidy.

5.3 Implication of Study

This research helps to provide an insight to investors, government and in attracting the USFDI. This study found that EXP, EXR, TAX given a significant impact to USFDI.

According to this study, EXR is positively related to USFDI. EXR of U.S per euro increase can be defined that U.S\$ increase and Euro is decrease. EXR give an impact on decision of investor (Ruiz, 2005). For view of investor, means that U.S\$ is having a better performance compare to Euro. It may affect economic growth and attract FDI (Asid, Razi, Mulok, Kogid, Lily, 2014). It plays an important for U.S's central bank have a mind set to set the EXR to get more investor invest in U.S.

This research represented EXP is having a positive significant relationship to USFDI. When trade of U.S increase, there is an increased in EXP of U.S either, and it can conclude that there are many foreign customers purchase U.S products. It represents trade performance and economic of U.S is better. However, it generated idea for

government to set trade barrier in order to attract more trade to U.S.

Lastly, this research shows TAX is positively related to USFDI. Typically, governments are interested to attract investor. The changes of TAX are important to affect FDI. The reasonable of tax amount and deduct some laws can enhance the economic growth (Talpos & Ludosean, 2012). U.S government can set legitimate of fees or raise the tax with provide some discount or reduce tax barrier or rules can lead FDI increase. Therefore, it promotes economic growth.

5.4 Limitations

In the research progress, the research faced few difficulties and some limitation. The limitation is the research difficult to use the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model which can improve the accuracy of the research results.

This study faced some problem in the sample size of data, usually FDI data are in yearly basis, but this research difficult to find more data in yearly basis. So, this research uses quarterly data which research period is from year 1993Q2 to year 2019Q1, which sample size is 104. During the data findings process, this study faces problems in missing some date that useful in the research.

The other limitations are research are conducted in one develop country which is U.S. The result concluded from research do not necessarily reflect in whole economic world. Not every country reflects the same characteristic affect to USFDI. This study faced econometric problem in diagnostic checking which affect the research result become not so accuracy.

5.5 Recommendations

There are some recommendations provided for future researchers is suggest use panel data instead of time series data due to panel data has many benefits and useful in possesses more degrees of freedom and multi-dimensional data over multiple time series data. Besides, future research can try to include macroeconomic variable which believe to have significant impact to FDI for example interest rate and wages rate.

This study can try to combine primary data in research such as implication of changes of rules and regulations of the country. This might require researchers to collect the qualitative data such as level of confidence of investor or political factors happen in country. Research can obtain data through primary data collection such as survey, case studies and interviews.

Future researchers encouraged use latest technology software which is State or Gretl to run the data for more accuracy. Researcher can easier to get desired result. The most important is the future researcher can try to increase sample size in research so that research result have less econometric problem that affect the accuracy of research.

5.6 Conclusion

In conclusion, this research had found that the results about the FDI which are EXR, EXP and TAX positively related to USFDI.

This study provides the insight or guidance to government, policy makers to attract the USFDI and important to enhance economic growth. It plays an important role to investors as it can provide the idea for investment while they are making the investment decision.

Nowadays, global economic is at hurtle stage due to the pandemic of Coronavirus

declared by the World Health Organization (WHO). The U.S economy is also hardly attacked by this pandemic since many large industries started to slow down their operation and the big loss in stock market. In conjunction with the current situation, some investors withdrawn their funds in order to prevent get more losses since investors fear about Coronavirus will spread rapidly due to there are no vaccines or medical can control Coronavirus. Vaccine specialists feel that it is a “hardest problem” to develop a vaccine for Coronavirus (Branswell, 2020). In short it is not a suitable for investors to invest in USFDI.

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APPENDICES

Appendix 1

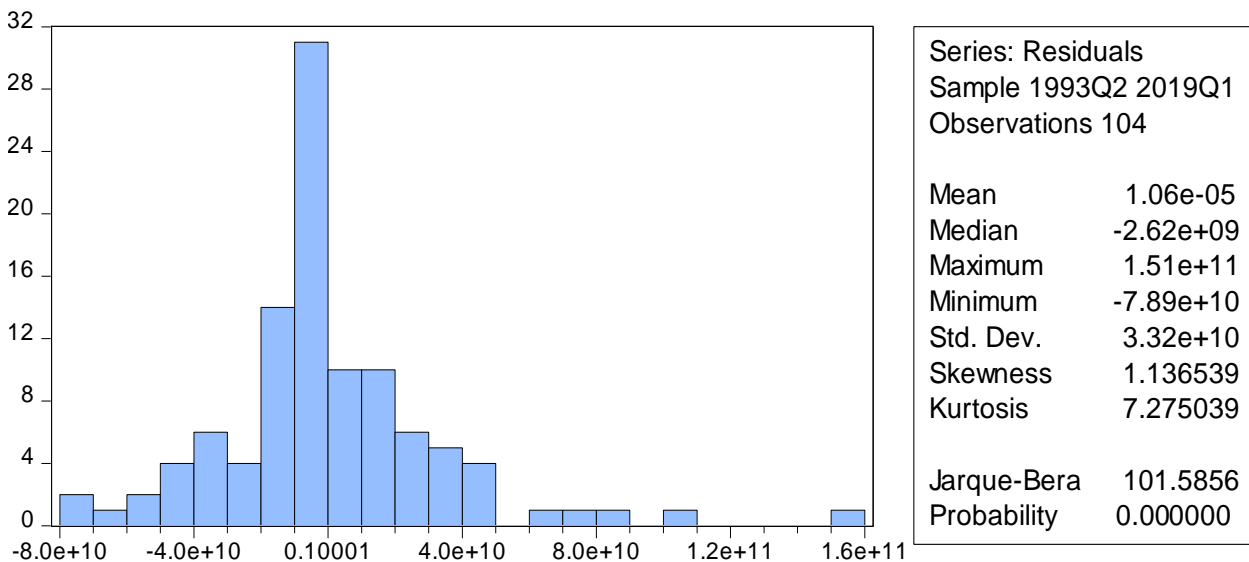
Empirical Result of Model 1

Dependent Variable: USFDI
 Method: Least Squares
 Date: 02/07/20 Time: 09:08
 Sample: 1993Q2 2019Q1
 Included observations: 104

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	0.430788	0.124740	3.453478	0.0008
EXR	5.28E+10	3.01E+10	1.753036	0.0827
TAX	0.231753	0.096358	2.405130	0.0180
C	-8.44E+10	3.09E+10	-2.729886	0.0075
R-squared	0.534353	Mean dependent var	7.48E+10	
Adjusted R-squared	0.520383	S.D. dependent var	4.86E+10	
S.E. of regression	3.36E+10	Akaike info criterion	51.35391	
Sum squared resid	1.13E+23	Schwarz criterion	51.45561	
Log likelihood	-2666.403	Hannan-Quinn criter.	51.39511	
F-statistic	38.25164	Durbin-Watson stat	1.541189	
Prob(F-statistic)	0.000000			

Appendix 2

Normality Test Model 1 (Jarque-Bera Normality Test)



H_0 : Error term are normally distributed.

H_1 : Error term are not normally distributed.

Critical Value: $\alpha = 0.10$

Test statistic: p-value = 0.000000

Decision rule: Reject H_0 if the p-value is smaller than the critical value, 0.10.

Otherwise, do not reject H_0 .

Decision: Reject H_0 since the p-value is 0.000000 smaller than the critical value, 0.10.

Conclusion: There is enough evidence to conclude that the error terms are not normally distributed.

Appendix 3

Model Specification Test of Model 1 (Ramsey RESET Test)

Ramsey RESET Test

F-statistic	0.002757	Prob. F(1, 99)	0.9582
Likelihood ratio	0.002896	Prob. Chi-Square(1)	0.9571

Test Equation:

Dependent Variable: USFDI

Method: Least Squares

Date: 02/07/20 Time: 09:12

Sample: 1993Q2 2019Q1

Included observations: 104

Variable	Coefficient	t	Std. Error	t-Statistic	Prob.
EXP	0.441813		0.244539	1.806718	0.0738
EXR	5.40E+10		3.81E+10	1.418517	0.1592
TAX	0.236057		0.126874	1.860565	0.0658
C	-8.69E+10		5.70E+10	-1.523977	0.1307
FITTED^2	-1.49E-13		2.84E-12	-0.052508	0.9582
R-squared	0.534366		Mean dependent var	7.48E+10	
Adjusted R-squared	0.515552		S.D. dependent var	4.86E+10	
S.E. of regression	3.38E+10		Akaike info criterion	51.37311	
Sum squared resid	1.13E+23		Schwarz criterion	51.50024	
Log likelihood	-2666.402		Hannan-Quinn criter.	51.42462	
F-statistic	28.40332		Durbin-Watson stat	1.541313	
Prob(F-statistic)	0.000000				

H_0 : Model specification is correct.

H_1 : Model specification is incorrect.

Critical Value: $\alpha = 0.10$

Test statistic: p-value = 0.9582

Decision rule: Reject H_0 if the p-value is smaller than the critical value, 0.10.

Otherwise, do not reject. H_0 .

Decision: Do not reject H_0 since the p-value is 0.9582 more than the critical value, 0.10.

Conclusion: There is enough evidence to conclude that the model specification is correct.

Appendix 4

Multicollinearity Testing of Model 1

Correlation Table

	EXP	EXR	TAX
EXP	1.000000	-0.30770	0.85586
EXR	-0.30770	1.000000	-0.23135
TAX	0.85586	-0.23135	1.000000

Variance Inflation Factor (table)

Independent Variables		Correlation, R	R ²	VIF
EXP	EXR	-0.30770	0.098476	1.10923
EXP	TAX	0.85586	0.727420	3.66865
EXR	TAX	-0.23135	0.056801	1.06022

Appendix 5

Heteroscedasticity Testing (Autoregressive Conditional Heteroscedasticity (ARCH) Test) of Model 1

5.1 Lag Length = 1

Heteroskedasticity Test: ARCH

F-statistic	0.026008	Prob. F(1,101)	0.8722
Obs*R-squared	0.026517	Prob. Chi-Square(1)	0.8706

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:27

Sample (adjusted): 1993Q3 2019Q1

Included observations: 103 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.12E+21	2.94E+20	3.804510	0.0002
RESID^2(-1)	-0.016044	0.099485	-0.161271	0.8722

R-squared	0.000257	Mean dependent var	1.10E+21
Adjusted R-squared	-0.009641	S.D. dependent var	2.75E+21
S.E. of regression	2.76E+21	Akaike info criterion	101.5994
Sum squared resid	7.72E+44	Schwarz criterion	101.6505
Log likelihood	-5230.368	Hannan-Quinn criter.	101.6201
F-statistic	0.026008	Durbin-Watson stat	1.998323
Prob(F-statistic)	0.872202		

5.2 Lag Length = 2

Heteroskedasticity Test: ARCH

F-statistic	0.162305	Prob. F(2,99)	0.8504
Obs*R-squared	0.333353	Prob. Chi-Square(2)	0.8465

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:28

Sample (adjusted): 1993Q4 2019Q1

Included observations: 102 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.07E+21	3.18E+20	3.355523	0.0011
RESID^2(-1)	-0.016679	0.100349	-0.166206	0.8683
RESID^2(-2)	0.054382	0.100340	0.541975	0.5891
R-squared	0.003268	Mean dependent var	1.11E+21	
Adjusted R-squared	-0.016868	S.D. dependent var	2.76E+21	
S.E. of regression	2.79E+21	Akaike info criterion	101.6246	
Sum squared resid	7.68E+44	Schwarz criterion	101.7018	
Log likelihood	-5179.852	Hannan-Quinn criter.	101.6558	
F-statistic	0.162305	Durbin-Watson stat	1.989027	
Prob(F-statistic)	0.850408			

5.3 Lag Length = 3

Heteroskedasticity Test: ARCH

F-statistic	0.436065	Prob. F(3,97)	0.7277
Obs*R-squared	1.344015	Prob. Chi-Square(3)	0.7187

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:29

Sample (adjusted): 1994Q1 2019Q1

Included observations: 101 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.19E+21	3.39E+20	3.500686	0.0007
RESID^2(-1)	-0.012494	0.101040	-0.123653	0.9018
RESID^2(-2)	0.051421	0.100889	0.509678	0.6114
RESID^2(-3)	-0.100787	0.100969	-0.998195	0.3207
R-squared	0.013307	Mean dependent var	1.12E+21	
Adjusted R-squared	-0.017209	S.D. dependent var	2.77E+21	
S.E. of regression	2.80E+21	Akaike info criterion	101.6434	
Sum squared resid	7.60E+44	Schwarz criterion	101.7470	
Log likelihood	-5128.992	Hannan-Quinn criter.	101.6853	
F-statistic	0.436065	Durbin-Watson stat	1.961196	
Prob(F-statistic)	0.727682			

5.4 Lag Length = 4

Heteroskedasticity Test: ARCH

F-statistic	1.323376	Prob. F(4,95)	0.2669
Obs*R-squared	5.278014	Prob. Chi-Square(4)	0.2599

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:30

Sample (adjusted): 1994Q2 2019Q1

Included observations: 100 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.78E+20	3.56E+20	2.744496	0.0072
RESID^2(-1)	0.005168	0.100490	0.051429	0.9591
RESID^2(-2)	0.037602	0.100105	0.375630	0.7080
RESID^2(-3)	-0.099280	0.099990	-0.992900	0.3233
RESID^2(-4)	0.202842	0.102193	1.984890	0.0500
R-squared	0.052780	Mean dependent var	1.13E+21	
Adjusted R-squared	0.012897	S.D. dependent var	2.79E+21	
S.E. of regression	2.77E+21	Akaike info criterion	101.6321	
Sum squared resid	7.28E+44	Schwarz criterion	101.7624	
Log likelihood	-5076.607	Hannan-Quinn criter.	101.6849	
F-statistic	1.323376	Durbin-Watson stat	2.071223	
Prob(F-statistic)	0.266904			

5.5 Lag Length = 5

Heteroskedasticity Test: ARCH

F-statistic	1.662738	Prob. F(5,93)	0.1514
Obs*R-squared	8.123830	Prob. Chi-Square(5)	0.1495

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:30

Sample (adjusted): 1994Q3 2019Q1

Included observations: 99 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.37E+20	3.68E+20	2.273154	0.0253
RESID^2(-1)	-0.031341	0.102036	-0.307156	0.7594
RESID^2(-2)	0.052609	0.100027	0.525945	0.6002
RESID^2(-3)	-0.109642	0.099629	-1.100503	0.2740
RESID^2(-4)	0.200868	0.101688	1.975344	0.0512
RESID^2(-5)	0.179474	0.103697	1.730750	0.0868

R-squared	0.082059	Mean dependent var	1.14E+21
Adjusted R-squared	0.032707	S.D. dependent var	2.80E+21
S.E. of regression	2.75E+21	Akaike info criterion	101.6306
Sum squared resid	7.05E+44	Schwarz criterion	101.7878
Log likelihood	-5024.713	Hannan-Quinn criter.	101.6942
F-statistic	1.662738	Durbin-Watson stat	1.991872
Prob(F-statistic)	0.151368		

5.6 Lag Length = 6

Heteroskedasticity Test: ARCH

F-statistic	1.353066	Prob. F(6,91)	0.2422
Obs*R-squared	8.026791	Prob. Chi-Square(6)	0.2361

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:31

Sample (adjusted): 1994Q4 2019Q1

Included observations: 98 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.68E+20	3.82E+20	2.269840	0.0256
RESID^2(-1)	-0.028256	0.104810	-0.269591	0.7881
RESID^2(-2)	0.056161	0.103302	0.543662	0.5880
RESID^2(-3)	-0.112949	0.101237	-1.115692	0.2675
RESID^2(-4)	0.200973	0.102996	1.951263	0.0541
RESID^2(-5)	0.177694	0.104865	1.694500	0.0936
RESID^2(-6)	-0.023518	0.106589	-0.220646	0.8259
R-squared	0.081906	Mean dependent var	1.15E+21	
Adjusted R-squared	0.021372	S.D. dependent var	2.81E+21	
S.E. of regression	2.78E+21	Akaike info criterion	101.6609	
Sum squared resid	7.04E+44	Schwarz criterion	101.8455	
Log likelihood	-4974.382	Hannan-Quinn criter.	101.7355	
F-statistic	1.353066	Durbin-Watson stat	2.000423	
Prob(F-statistic)	0.242166			

5.7 Lag Length = 7

Heteroskedasticity Test: ARCH

F-statistic	1.127571	Prob. F(7,89)	0.3532
Obs*R-squared	7.901715	Prob. Chi-Square(7)	0.3413

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:33

Sample (adjusted): 1995Q1 2019Q1

Included observations: 97 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.92E+20	3.97E+20	2.246634	0.0271
RESID^2(-1)	-0.029557	0.105996	-0.278853	0.7810
RESID^2(-2)	0.057106	0.106128	0.538089	0.5919
RESID^2(-3)	-0.111686	0.104606	-1.067685	0.2886
RESID^2(-4)	0.198622	0.104699	1.897078	0.0611
RESID^2(-5)	0.177312	0.106249	1.668832	0.0987
RESID^2(-6)	-0.024746	0.107794	-0.229568	0.8190
RESID^2(-7)	-0.011955	0.107744	-0.110960	0.9119
R-squared	0.081461	Mean dependent var	1.16E+21	
Adjusted R-squared	0.009216	S.D. dependent var	2.82E+21	
S.E. of regression	2.81E+21	Akaike info criterion	101.6920	
Sum squared resid	7.03E+44	Schwarz criterion	101.9043	
Log likelihood	-4924.061	Hannan-Quinn criter.	101.7778	
F-statistic	1.127571	Durbin-Watson stat	1.999766	
Prob(F-statistic)	0.353165			

5.8 Lag Length =8

Heteroskedasticity Test: ARCH

F-statistic	0.959098	Prob. F(8,87)	0.4732
Obs*R-squared	7.780350	Prob. Chi-Square(8)	0.4552

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:33

Sample (adjusted): 1995Q2 2019Q1

Included observations: 96 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.05E+20	4.13E+20	2.192612	0.0310
RESID^2(-1)	-0.030624	0.107209	-0.285648	0.7758
RESID^2(-2)	0.056163	0.107372	0.523074	0.6023
RESID^2(-3)	-0.114088	0.107552	-1.060774	0.2917
RESID^2(-4)	0.195801	0.108449	1.805462	0.0745
RESID^2(-5)	0.176980	0.107947	1.639506	0.1047
RESID^2(-6)	-0.026235	0.109262	-0.240106	0.8108
RESID^2(-7)	-0.012738	0.108990	-0.116869	0.9072
RESID^2(-8)	0.007071	0.109338	0.064675	0.9486
R-squared	0.081045	Mean dependent var	1.17E+21	
Adjusted R-squared	-0.003456	S.D. dependent var	2.84E+21	
S.E. of regression	2.84E+21	Akaike info criterion	101.7236	
Sum squared resid	7.02E+44	Schwarz criterion	101.9640	
Log likelihood	-4873.733	Hannan-Quinn criter.	101.8208	
F-statistic	0.959098	Durbin-Watson stat	1.999074	
Prob(F-statistic)	0.473226			

5.9 Lag Length =9

Heteroskedasticity Test: ARCH

F-statistic	0.886378	Prob. F(9,85)	0.5409
Obs*R-squared	8.150939	Prob. Chi-Square(9)	0.5190

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:34

Sample (adjusted): 1995Q3 2019Q1

Included observations: 95 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.82E+20	4.28E+20	2.292300	0.0244
RESID^2(-1)	-0.031580	0.108152	-0.291992	0.7710
RESID^2(-2)	0.053484	0.108331	0.493705	0.6228
RESID^2(-3)	-0.117127	0.108514	-1.079376	0.2835
RESID^2(-4)	0.209345	0.111441	1.878517	0.0637
RESID^2(-5)	0.192303	0.111387	1.726449	0.0879
RESID^2(-6)	-0.034165	0.110653	-0.308762	0.7583
RESID^2(-7)	-0.008453	0.110190	-0.076713	0.9390
RESID^2(-8)	0.003325	0.110342	0.030137	0.9760
RESID^2(-9)	-0.077114	0.110530	-0.697680	0.4873
R-squared	0.085799	Mean dependent var	1.19E+21	
Adjusted R-squared	-0.010998	S.D. dependent var	2.85E+21	
S.E. of regression	2.86E+21	Akaike info criterion	101.7501	
Sum squared resid	6.97E+44	Schwarz criterion	102.0189	
Log likelihood	-4823.129	Hannan-Quinn criter.	101.8587	
F-statistic	0.886378	Durbin-Watson stat	2.012209	
Prob(F-statistic)	0.540881			

5.10 Lag Length =10

Heteroskedasticity Test: ARCH

F-statistic	0.833997	Prob. F(10,83)	0.5974
Obs*R-squared	8.582851	Prob. Chi-Square(10)	0.5721

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 02/07/20 Time: 09:35

Sample (adjusted): 1995Q4 2019Q1

Included observations: 94 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.07E+21	4.45E+20	2.396589	0.0188
RESID^2(-1)	-0.038916	0.109414	-0.355678	0.7230
RESID^2(-2)	0.052307	0.109284	0.478634	0.6335
RESID^2(-3)	-0.119415	0.109460	-1.090945	0.2785
RESID^2(-4)	0.205560	0.112458	1.827880	0.0712
RESID^2(-5)	0.208247	0.114678	1.815919	0.0730
RESID^2(-6)	-0.016457	0.114404	-0.143850	0.8860
RESID^2(-7)	-0.016999	0.111612	-0.152300	0.8793
RESID^2(-8)	0.007796	0.111540	0.069894	0.9444
RESID^2(-9)	-0.081013	0.111540	-0.726312	0.4697
RESID^2(-10)	-0.081890	0.111746	-0.732823	0.4657
R-squared	0.091307	Mean dependent var	1.20E+21	
Adjusted R-squared	-0.018174	S.D. dependent var	2.86E+21	
S.E. of regression	2.89E+21	Akaike info criterion	101.7765	
Sum squared resid	6.92E+44	Schwarz criterion	102.0741	
Log likelihood	-4772.496	Hannan-Quinn criter.	101.8967	
F-statistic	0.833997	Durbin-Watson stat	1.998145	
Prob(F-statistic)	0.597357			

5.11 Summary of Heteroscedasticity Testing, Autoregressive Conditional Heteroscedasticity (ARCH) test result

Lag Length	AIC	p-value
1	101.5994	0.8722
2	101.6246	0.8504
3	101.6434	0.7277
4	101.6321	0.2669
5	101.6306	0.1514
6	101.6609	0.2422
7	101.6920	0.3532
8	101.9640	0.4732
9	101.7501	0.5409
10	101.7765	0.5974

Lag length 1 has the lowest AIC

H_0 : There is no heteroscedasticity problem.

H_1 : There is heteroscedasticity problem.

Critical Value: $\alpha = 0.10$

Decision rule: Reject H_0 if the p-value is smaller than the critical value.

Otherwise, do not reject H_0 .

P-value: 0.8722

Decision: Do not reject H_0 since the p-value is 0.8722 more than the critical value 0.10.

Conclusion: There is enough evidence to conclude that the model not has heteroscedasticity problem in the estimated model at 10% significant level.

Appendix 6

Heteroscedasticity Problem Solving of Model 1 by using White's Heteroscedasticity-consistent Variances and Standard Errors Methods

Dependent Variable: USFDI
 Method: Least Squares
 Date: 02/07/20 Time: 09:46
 Sample: 1993Q2 2019Q1
 Included observations: 104
 White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP01	0.430788	0.134295	3.207785	0.0018
EXR	5.28E+10	3.04E+10	1.736429	0.0856
TAX	0.231753	0.087728	2.641711	0.0096
C	-8.44E+10	2.78E+10	-3.034291	0.0031
R-squared	0.534353	Mean dependent var	7.48E+10	
Adjusted R-squared	0.520383	S.D. dependent var	4.86E+10	
S.E. of regression	3.36E+10	Akaike info criterion	51.35391	
Sum squared resid	1.13E+23	Schwarz criterion	51.45561	
Log likelihood	-2666.403	Hannan-Quinn criter.	51.39511	
F-statistic	38.25164	Durbin-Watson stat	1.541189	
Prob(F-statistic)	0.000000	Wald F-statistic	36.26732	
Prob(Wald F-statistic)	0.000000			

Appendix 7

Autocorrelation Testing (Breusch-Godfrey LM Test) of Model 1

7.1 Lag Length = 1

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	5.519762	Prob. F(1,99)	0.0208
Obs*R-squared	5.492313	Prob. Chi-Square(1)	0.0191

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:36

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	-0.006783	0.122048	-0.055578	0.9558
EXR	-4.76E+09	2.95E+10	-0.161013	0.8724
TAX	0.000118	0.094251	0.001256	0.9990
C	4.82E+09	3.03E+10	0.158938	0.8740
RESID(-1)	0.230464	0.098094	2.349417	0.0208

R-squared	0.052811	Mean dependent var	1.06E-05
Adjusted R-squared	0.014540	S.D. dependent var	3.32E+10
S.E. of regression	3.29E+10	Akaike info criterion	51.31888
Sum squared resid	1.07E+23	Schwarz criterion	51.44602
Log likelihood	-2663.582	Hannan-Quinn criter.	51.37039
F-statistic	1.379940	Durbin-Watson stat	2.046007
Prob(F-statistic)	0.246391		

7.2 Lag Length = 2

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	3.251664	Prob. F(2,98)	0.0429
Obs*R-squared	6.472006	Prob. Chi-Square(2)	0.0393

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:37

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	-0.011349	0.122144	-0.092915	0.9262
EXR	-9.10E+09	2.99E+10	-0.304627	0.7613
TAX	0.000748	0.094261	0.007937	0.9937
C	8.88E+09	3.06E+10	0.290142	0.7723
RESID(-1)	0.208421	0.100586	2.072060	0.0409
RESID(-2)	0.100856	0.101650	0.992187	0.3235

R-squared	0.062231	Mean dependent var	1.06E-05
Adjusted R-squared	0.014385	S.D. dependent var	3.32E+10
S.E. of regression	3.29E+10	Akaike info criterion	51.32812
Sum squared resid	1.06E+23	Schwarz criterion	51.48068
Log likelihood	-2663.062	Hannan-Quinn criter.	51.38992
F-statistic	1.300666	Durbin-Watson stat	1.999261
Prob(F-statistic)	0.269927		

7.3 Lag Length = 3

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.147232	Prob. F(3,97)	0.0992
Obs*R-squared	6.476465	Prob. Chi-Square(3)	0.0906

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:38

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	-0.011085	0.122833	-0.090245	0.9283
EXR	-8.76E+09	3.04E+10	-0.287665	0.7742
TAX	0.000680	0.094749	0.007181	0.9943
C	8.57E+09	3.11E+10	0.275782	0.7833
RESID(-1)	0.209063	0.101560	2.058514	0.0422
RESID(-2)	0.102138	0.103967	0.982401	0.3283
RESID(-3)	-0.006921	0.103919	-0.066597	0.9470
R-squared	0.062274	Mean dependent var	1.06E-05	
Adjusted R-squared	0.004270	S.D. dependent var	3.32E+10	
S.E. of regression	3.31E+10	Akaike info criterion	51.34730	
Sum squared resid	1.06E+23	Schwarz criterion	51.52529	
Log likelihood	-2663.060	Hannan-Quinn criter.	51.41941	
F-statistic	1.073616	Durbin-Watson stat	1.999475	
Prob(F-statistic)	0.383687			

7.4 Lag Length = 4

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.735902	Prob. F(4,96)	0.1484
Obs*R-squared	7.014861	Prob. Chi-Square(4)	0.1351

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:39

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	-0.019633	0.123685	-0.158735	0.8742
EXR	-1.26E+10	3.10E+10	-0.405431	0.6861
TAX	0.004454	0.095118	0.046827	0.9627
C	1.18E+10	3.15E+10	0.375515	0.7081
RESID(-1)	0.210866	0.101836	2.070654	0.0411
RESID(-2)	0.096701	0.104484	0.925509	0.3570
RESID(-3)	-0.024345	0.106870	-0.227802	0.8203
RESID(-4)	0.079171	0.108451	0.730019	0.4672
R-squared	0.067451	Mean dependent var	1.06E-05	
Adjusted R-squared	-0.000548	S.D. dependent var	3.32E+10	
S.E. of regression	3.32E+10	Akaike info criterion	51.36100	
Sum squared resid	1.06E+23	Schwarz criterion	51.56441	
Log likelihood	-2662.772	Hannan-Quinn criter.	51.44341	
F-statistic	0.991944	Durbin-Watson stat	2.018254	
Prob(F-statistic)	0.441881			

7.5 Lag Length = 5

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.651552	Prob. F(5,95)	0.1539
Obs*R-squared	8.317119	Prob. Chi-Square(5)	0.1396

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:40

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	-0.030498	0.123866	-0.246221	0.8060
EXR	-1.93E+10	3.15E+10	-0.612195	0.5419
TAX	0.006137	0.094985	0.064613	0.9486
C	1.83E+10	3.19E+10	0.573329	0.5678
RESID(-1)	0.203711	0.101875	1.999618	0.0484
RESID(-2)	0.103260	0.104485	0.988278	0.3255
RESID(-3)	-0.033335	0.107000	-0.311547	0.7561
RESID(-4)	0.054994	0.110354	0.498346	0.6194
RESID(-5)	0.124177	0.109206	1.137086	0.2584

R-squared	0.079972	Mean dependent var	1.06E-05
Adjusted R-squared	0.002496	S.D. dependent var	3.32E+10
S.E. of regression	3.31E+10	Akaike info criterion	51.36671
Sum squared resid	1.04E+23	Schwarz criterion	51.59555
Log likelihood	-2662.069	Hannan-Quinn criter.	51.45942
F-statistic	1.032220	Durbin-Watson stat	1.995632
Prob(F-statistic)	0.417561		

7.6 Lag Length = 6

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.377354	Prob. F(6,94)	0.2318
Obs*R-squared	8.404401	Prob. Chi-Square(6)	0.2099

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:40

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	-0.027816	0.124803	-0.222882	0.8241
EXR	-1.71E+10	3.25E+10	-0.527555	0.5991
TAX	0.006423	0.095450	0.067290	0.9465
C	1.61E+10	3.30E+10	0.489592	0.6256
RESID(-1)	0.206795	0.102908	2.009501	0.0474
RESID(-2)	0.103751	0.105004	0.988061	0.3257
RESID(-3)	-0.034815	0.107637	-0.323450	0.7471
RESID(-4)	0.056336	0.110983	0.507606	0.6129
RESID(-5)	0.129675	0.111329	1.164794	0.2470
RESID(-6)	-0.032823	0.112038	-0.292960	0.7702
R-squared	0.080812	Mean dependent var	1.06E-05	
Adjusted R-squared	-0.007196	S.D. dependent var	3.32E+10	
S.E. of regression	3.33E+10	Akaike info criterion	51.38503	
Sum squared resid	1.04E+23	Schwarz criterion	51.63930	
Log likelihood	-2662.021	Hannan-Quinn criter.	51.48804	
F-statistic	0.918236	Durbin-Watson stat	2.007243	
Prob(F-statistic)	0.513040			

7.7 Lag Length =7

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.272022	Prob. F(7,93)	0.2728
Obs*R-squared	9.087284	Prob. Chi-Square(7)	0.2465

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:42

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	-0.016107	0.125840	-0.127996	0.8984
EXR	-1.13E+10	3.33E+10	-0.339258	0.7352
TAX	0.002624	0.095732	0.027411	0.9782
C	1.08E+10	3.36E+10	0.322561	0.7478
RESID(-1)	0.203100	0.103189	1.968228	0.0520
RESID(-2)	0.111458	0.105611	1.055365	0.2940
RESID(-3)	-0.032355	0.107869	-0.299944	0.7649
RESID(-4)	0.050872	0.111379	0.456750	0.6489
RESID(-5)	0.133075	0.111603	1.192396	0.2361
RESID(-6)	-0.017921	0.113704	-0.157614	0.8751
RESID(-7)	-0.091618	0.112003	-0.817998	0.4154
R-squared	0.087378	Mean dependent var	1.06E-05	
Adjusted R-squared	-0.010754	S.D. dependent var	3.32E+10	
S.E. of regression	3.33E+10	Akaike info criterion	51.39709	
Sum squared resid	1.03E+23	Schwarz criterion	51.67678	
Log likelihood	-2661.649	Hannan-Quinn criter.	51.51040	
F-statistic	0.890415	Durbin-Watson stat	2.019169	
Prob(F-statistic)	0.545204			

7.8 Lag Length =8

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.245208	Prob. F(8,92)	0.2822
Obs*R-squared	10.16081	Prob. Chi-Square(8)	0.2539

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:43

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	-0.001436	0.126615	-0.011345	0.9910
EXR	-3.07E+09	3.42E+10	-0.089778	0.9287
TAX	-0.000640	0.095757	-0.006685	0.9947
C	3.07E+09	3.45E+10	0.088947	0.9293
RESID(-1)	0.192791	0.103648	1.860049	0.0661
RESID(-2)	0.106666	0.105684	1.009286	0.3155
RESID(-3)	-0.022382	0.108276	-0.206716	0.8367
RESID(-4)	0.053352	0.111374	0.479036	0.6330
RESID(-5)	0.126042	0.111782	1.127575	0.2624
RESID(-6)	-0.013701	0.113747	-0.120454	0.9044
RESID(-7)	-0.073415	0.113368	-0.647579	0.5189
RESID(-8)	-0.116017	0.113087	-1.025908	0.3076
R-squared	0.097700	Mean dependent var	1.06E-05	
Adjusted R-squared	-0.010184	S.D. dependent var	3.32E+10	
S.E. of regression	3.33E+10	Akaike info criterion	51.40495	
Sum squared resid	1.02E+23	Schwarz criterion	51.71007	
Log likelihood	-2661.057	Hannan-Quinn criter.	51.52856	
F-statistic	0.905606	Durbin-Watson stat	2.041129	
Prob(F-statistic)	0.538334			

7.9 Lag Length =9

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.513171	Prob. F(9,91)	0.1551
Obs*R-squared	13.53803	Prob. Chi-Square(9)	0.1397

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:44

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	0.024781	0.125803	0.196986	0.8443
EXR	9.97E+09	3.45E+10	0.288887	0.7733
TAX	-0.009258	0.094649	-0.097818	0.9223
C	-8.74E+09	3.46E+10	-0.252471	0.8012
RESID(-1)	0.170207	0.103055	1.651623	0.1021
RESID(-2)	0.089368	0.104755	0.853119	0.3958
RESID(-3)	-0.028632	0.106946	-0.267723	0.7895
RESID(-4)	0.070578	0.110347	0.639601	0.5240
RESID(-5)	0.131576	0.110394	1.191873	0.2364
RESID(-6)	-0.023711	0.112424	-0.210902	0.8334
RESID(-7)	-0.064358	0.112027	-0.574482	0.5671
RESID(-8)	-0.085555	0.112858	-0.758075	0.4504
RESID(-9)	-0.205593	0.111543	-1.843177	0.0686
R-squared	0.130173	Mean dependent var	1.06E-05	
Adjusted R-squared	0.015471	S.D. dependent var	3.32E+10	
S.E. of regression	3.29E+10	Akaike info criterion	51.38752	
Sum squared resid	9.85E+22	Schwarz criterion	51.71807	
Log likelihood	-2659.151	Hannan-Quinn criter.	51.52144	
F-statistic	1.134879	Durbin-Watson stat	2.034592	
Prob(F-statistic)	0.342612			

7.10 Lag Length =10

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.440153	Prob. F(10,90)	0.1758
Obs*R-squared	14.34614	Prob. Chi-Square(10)	0.1578

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 02/07/20 Time: 09:44

Sample: 1993Q2 2019Q1

Included observations: 104

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	0.036983	0.126661	0.291989	0.7710
EXR	1.71E+10	3.55E+10	0.482344	0.6307
TAX	-0.011298	0.094775	-0.119211	0.9054
C	-1.56E+10	3.55E+10	-0.439379	0.6614
RESID(-1)	0.150737	0.105402	1.430114	0.1561
RESID(-2)	0.079590	0.105424	0.754946	0.4523
RESID(-3)	-0.033385	0.107187	-0.311465	0.7562
RESID(-4)	0.063695	0.110726	0.575247	0.5666
RESID(-5)	0.140142	0.110917	1.263481	0.2097
RESID(-6)	-0.020882	0.112585	-0.185476	0.8533
RESID(-7)	-0.070091	0.112324	-0.624005	0.5342
RESID(-8)	-0.083108	0.113008	-0.735414	0.4640
RESID(-9)	-0.191807	0.112703	-1.701877	0.0922
RESID(-10)	-0.103391	0.114792	-0.900684	0.3702
R-squared	0.137944	Mean dependent var	1.06E-05	
Adjusted R-squared	0.013424	S.D. dependent var	3.32E+10	
S.E. of regression	3.29E+10	Akaike info criterion	51.39778	
Sum squared resid	9.76E+22	Schwarz criterion	51.75376	
Log likelihood	-2658.685	Hannan-Quinn criter.	51.54200	
F-statistic	1.107810	Durbin-Watson stat	2.026614	
Prob(F-statistic)	0.363039			

7.11 Summary of Autocorrelation Testing, Breush-Godfrey LM test result

Lag Length	AIC	p-value
1	51.31888	0.0208
2	51.32812	0.0429
3	51.34730	0.0992
4	51.36100	0.1484
5	51.36671	0.1539
6	51.38503	0.2318
7	51.39709	0.2728
8	51.40495	0.2822
9	51.38752	0.1551
10	51.39778	0.1758

Lag length 1 has the lowest AIC

H_0 : There is no autocorrelation problem.

H_1 : There is autocorrelation problem.

Critical Value: $\alpha = 0.10$

Decision rule: Reject H_0 if the p-value is smaller than the critical value.

Otherwise, do not reject H_0 .

P-value: 0.0208

Decision: Reject H_0 since the p-value is 0.0208 smaller than the critical value 0.10.

Conclusion: There is enough evidence to conclude that the model has autocorrelation problem in the estimated model at 10% significant level.

Appendix 8

Hypothesis Testing Overall Significance and Individual Regression Coefficients Significance of Model 1

Dependent Variable: USFDI
 Method: Least Squares
 Date: 02/07/20 Time: 09:46
 Sample: 1993Q2 2019Q1
 Included observations: 104
 White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXP	0.430788	0.134295	3.207785	0.0018
EXR	5.28E+10	3.04E+10	1.736429	0.0856
TAX	0.231753	0.087728	2.641711	0.0096
C	-8.44E+10	2.78E+10	-3.034291	0.0031
R-squared	0.534353	Mean dependent var	7.48E+10	
Adjusted R-squared	0.520383	S.D. dependent var	4.86E+10	
S.E. of regression	3.36E+10	Akaike info criterion	51.35391	
Sum squared resid	1.13E+23	Schwarz criterion	51.45561	
Log likelihood	-2666.403	Hannan-Quinn criter.	51.39511	
F-statistic	38.25164	Durbin-Watson stat	1.541189	
Prob(F-statistic)	0.000000	Wald F-statistic	36.26732	
Prob(Wald F-statistic)	0.000000			

8.1 Hypothesis Testing Overall Significance and Individual Regression Coefficients Significance of Multiple Regression of Model 1

$H_0: \beta_5 = \beta_6 = \beta_7 = 0$

H_1 : At least one coefficient is different from zero.

Critical Value: $\alpha = 0.10$

Decision rule: Reject H_0 if the p-value is smaller than the critical value.
Otherwise, do not reject H_0 .

P-value: 0.000000

Decision: Reject H_0 since the p-value is 0.000000 smaller than the critical value 0.10.

Conclusion: There is enough evidence to conclude that the model is significant to explain United States FDI inflows.

8.2 Hypothesis Testing of Individual Regression Coefficients Significance of Model 1

8.2.1 Hypothesis Testing of Significance of β_5 : Export, EXP, of Model 1

$H_0: \beta_{12} = 0$

$H_1: \beta_{12} \neq 0$

Critical Value: $\alpha = 0.10$

Decision rule: Reject H_0 if the p-value is smaller than the critical value.
Otherwise, do not reject H_0 .

P-value: 0.0018

Decision: Reject H_0 since the p-value is 0.0018 smaller than the critical value 0.10.

Conclusion: There is enough evidence to conclude that the $\beta_{12} \neq 0$. This show β_5 : Export, EXP, is significant affect United States FDI inflows at 0.10 significance level.

8.2.2 Hypothesis Testing of Significance of β_{17} : Exchange rate, EXR, of Model 1

$H_0: \beta_6 = 0$

$H_1: \beta_6 \neq 0$

Critical Value: $\alpha = 0.10$

Decision rule: Reject H_0 if the p-value is smaller than the critical value.
Otherwise, do not reject H_0 .

P-value: 0.0856

Decision: Reject H_0 since the p-value is 0.0856 smaller than the critical value 0.10.

Conclusion: There is enough evidence to conclude that the $\beta_6 \neq 0$. This show β_6 : Exchange Rate, EXR, is significant affect United States FDI inflows at 0.10 significance level.

8.2.3 Hypothesis Testing of Significance of β_{18} : Taxation, TAX, of Model 1

$H_0: \beta_7 = 0$

$H_1: \beta_7 \neq 0$

Critical Value: $\alpha = 0.10$

Decision rule: Reject H_0 if the p-value is smaller than the critical value. Otherwise, do not reject H_0 .

P-value: 0.0096

Decision: Reject H_0 since the p-value is 0.0096 smaller than the critical value 0.10.

Conclusion: There is enough evidence to conclude that the $\beta_7 \neq 0$. This show β_7 : Taxation, TAX is significant affect United States FDI inflows at 0.10 significance level.

