CAPITAL UNIVERSITY OF SCIENCE AND TECHNOLOGY, ISLAMABAD

Carbon Emissions, Foreign Direct Investment and Stock Market Trading Activity: Evidence from Low and Middle-Income Countries

by

Syed Mudassir Hussain Shah

A thesis submitted in partial fulfillment for the degree of Master of Science

in the

Faculty of Management & Social Sciences
Department of Management Sciences

2018

This thesis is dedicated to my Parents

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY
ISLAMABAD

CERTIFICATE OF APPROVAL

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Acknowledgements

First of all I would like to thanks Almighty Allah who gave me courage to complete this thesis. I would like to express my sincere thanks to a number of people who have made the completion of this thesis possible. I am extremely grateful to all of them.

I wish to thank my supervisors Dr. Junaid Ahmed who have provided invaluable instruction, mentorship and encouragement throughout the thesis journey. Your dedication to financial research and hard work will continue to be a source of motivation and guidance for me long after the completion of this degree.

I would also like to thank Mushtaq Hussain Khan for insightful suggestions that have improved many aspects of this thesis significantly and his invaluable suggestions regarding research methodology and data analysis.

Finally, I would also like to thank my family and friends. Your persistent encouragement and support has made the difference in helping me persevere towards the completion of this journey.

All errors in this thesis are my sole responsibility.

Abstract

This study explores the impact of foreign direct investment flows and stock trading activity on CO2 emissions using a sample low & middle income countries over the period of 1980 to 2016. For empirical analysis, this study used panel data fixed effect model.

Considering the set of developing countries the results indicate that foreign direct investment and stock turnover have no impact on carbon emissions. However, for low income countries, the study found that both variables have positive and significant effect on carbon emissions. For low income countries the study found positive relationship between manufacture to GDP and carbon emission. On the contrary in middle income countries, they have negative effect due to the use of cleaner technology in production.

This study is important for policy makers to achieve sustainable economic development and management of CO2 emissions considering the factors that help in reducing carbon emissions.

Key Words: Carbon Emissions, Foreign Direct Investment, Stock Market Trading Activity

Contents

List of Tables

Chapter 1

Introduction

1.1 Background of the Study

From the previous few decades, the world is facing the problem of global warming &environment change issues. Carbon dioxide emissions seem to be the main contributor of global warming (Ghosh, 2010). As developing countries continue to grow in economic size and their carbon dioxide emissions is a continues problem affecting to the flow of foreign direct investments and the environment (Ferreira-Gonzlez et al., 2012). Looking into the issue of carbon dioxide emissions, the idea of low carbon city & green economy are now gaining popularity between the developing countries (Dai, Masui, Matsuoka, & Fujimori, 2012). Hence exploring reasons influencing the carbon dioxide emissions appear to be the importance of handling the greenhouse gas emissions and global warming issues in emerging and developing countries.

Total foreign direct investment shares inflow to less developed countries (LDCs) while total world foreign direct share investment has increased from 25% in the 1990s to 31% in 2000s. These inflows have been welcomed and encourage by less developed countries as its plays an important role in job creation and consider an important source of growth (Blanco, Gonzalez, & Ruiz, 2013).Still, there is concern that less developed countries might competitively challenge each other

environmental regulation to attracted foreign direct investment (Elliott & Shimamoto, 2008). Less developed countries due to carbon dioxide emissions may lead to the pollutions and these countries becoming pollution haven, somewhere multinational corporations (MNCs.) set operation for the save environment- related cost (Grossman & Krueger, 1991; Mani & Wheeler, 1998). In this situation, the MNCs that have more to add & transfer to those in the majority pollution-concentrated or dirty industries.

Thus, as less developed countries carry on attention of significant shares of foreign direct investment flow.. From many years the carbon dioxide emissions climate changes pollution became the one of main issue worldwide. Low income nations are growing day by day and they attract the FDI & industrialization day by day. Developed countries have laws against the carbon emission per capita collect high taxes and use latest equipments are uses which control the carbon emission. FDI also play an important role in carbon emission and financial intermediate is other source. Banks and financing institute offers loans on easy installment and other facilities and a huge amount is financed to multinational and national companies. They can invest in market to generate profit. Installing new industries and machinery plays role in carbon emissions. It is important to evaluate whether foreign direct investment inflows to less developed countries are connected with higher level of pollutions. The previous literature on this subject has focused on whether foreign direct investment inflow to less developed countries has been prompted by lax environmental regulations. The majority of the work on the pollution haven Theory is created for case investigations also firm-level examination. Those experimental confirmation need been mixed, with different investigations discovering no backing to this theory ((Eskeland & Harrison, 2003; McDermott, 2009; Mani & Wheeler, 1998; Wagner& Timmins, 2009). A could be allowed demonstration of the uncertainty in the experimental effects over investigations lies in the contrasts in the growth (or question) furthermore in the experimental approach including gaps previously, econometric methodologies, absence of identical information furthermore is proxies.

In this study, we are concerned with whether foreign direct investment flows and

stock trading activity for a set of developing nations, low income and middle income. We examined the relationship between foreign direct investment, stock trading activity and CO2 emissions in these countries. In particular, we conduct a panel data analysis the relationship among foreign direct investment, stock trading activity with CO2 emissions. Therefore, we are able to determine whether increases of foreign direct investment and stock trading activity in pollution-intensive sectors are associated with higher CO2 emissions.

Understanding elements of carbon dioxide emissions which are very necessary for the energy and green policy making. Support from earlier literature, this study assumes that energy use, foreign direct investment and stock marketing trading activity are the main determinants of CO2. Environment value has a lot of measurements. Our exists are influenced with the air we breathe, the excellence we see over nature, those water we drink and the mixed carrier about species which we observe. The gainfulness from claiming our asset done and handling merchandise and benefits may be impacted toward climate, precipitation and the supplements in the soil (Grossman & Krueger, 1995). The reason of global warming is greenhouse gas (GHG).Human are the main cause of these gas carbon dioxide .Which are cause by those fossil fuel which is used more than 60% of the GHG (IEA, 2013). The main reason behind increase in carbon dioxide is increase in all types of productions& increase in consumption and the energy use in productions. Particularly the foreign direct investment is also the cause of carbon dioxide emissions in global processing .Due to foreign direct investments production level increase and production may cause carbon dioxide emissions to increase. At present worldwide greenhouse gas emissions level would extensively higher over the individuals levels for 2020 that might in line with gathering the 1.5c alternately 2c targets. In 2010, the developing countries accounted about 60% worldwide greenhouses emission. Those practically later estimates from claiming worldwide greenhouse gas outflows in the period 2010which measure 50.1 gaga tonnes increase carbon dioxide equal (GtCO2e) for every year (range: 45.6 54.6 GtCO2e for every year).

1.2 Contribution of the study

Studies on causes inducing CO2 emissions such as FDI and stock market trading activity are limited. In the best of our information, this study will be the first attempts to empirically investigate the relationship among carbon emissions, foreign direct investment and stock market trading activity using panel-data regression methodology. In this regard, we will investigate empirically from a large dataset that covers 93 markets that are further classified into low income countries and middle income group countries during 1980-2016.To explore this relationship is important because for an economic decision maker, stock returns is only one part of the decision making process. Another part that must be taken into consideration is trading 'activity when one makes investment decisions. Also, in the intersection of supply and demand one of the main fundamental notions of economics is that determine not only equilibrium quantities but equilibrium or trading volumes.

1.3 Research Objectives

This study will address following research objectives:

i. To investigate the impact of carbon emissions and foreign direct investment in low & middle income countries.

ii. To investigate the impact of carbon emissions and stock market trading activity in low and middle-income countries.

1.4 Research Questions

Following are the research questions of this study:

i. Is the relationship exists between carbon emissions and foreign direct investment in now low and middle income countries

ii. Is the relationship exists between carbon emissions and stock market trading activity in now low and middle income countries

1.5 Significance of the Study

The carbon dioxide emission within a country does not rely upon level of income by itself, financial development and stock market trading activity may be other sources. This study is significant because of following reason. First, foreign direct investment Is being attracted by financial development to be able to increase economic growth and to accelerate carbon dioxide emission (Frankel et al., 1999).Second, to consumer efficient financial intermediate and prosperous seems favorable loans activities, for consumer which makes it easier to buy greater price items like house, vehicles, refrigerator, ac, washing machine, and so on., as well as they emit Co_2(Sadorsky et al., 2010). Moreover, listed enterprises to lower financing costs is helped by stock markets developments , increases financing channel, and mix up operating risks, hence to purchase fresh installation and spend in new and fresh task and then rise energy consumptions & carbon emissions (Dasgupta et al., 2001).

1.6 Organization of the Study

The rest study is structured as follow:

The next chapter explains review of latest literature & hypotheses developments. This section is pursuing through the data & methodology which is use to take out the empirical analysis in Section iii. Final section provides the concluding remarks and policy recommendations.

Chapter 2

Literature Review

2.1 Theoretical Framework

There is an large number of literature on the relationship between economic development and environmental degradation i.e. the Environmental Kuznets Curve (EKC)with respect to this hypothesis, there exists positive relationship between economic development &environmental development, in the beginning countries try their best to increase the standard of living from low level to better level even if that have some environmental degradation. But as economic move toward higher level of development & acquire good environment outcomes and rising their economic which become most important for country. Therefore the EKC need an altered u state. As form many studies result indicate and support the existence of u state shape and existence of development.Shafik (1994)delivers evidence of an inverted EKC for deferred particulate matter (SPM), deforestation percentage, & SO_2(Grossman & Krueger, 1991).

Environmental, degradation is dissolution of the environment through depletion of asset,example of which is soil, water and air; the destruction of nature is due to eliminate of wildlife reduction to condition and the reduction around natural an amassed. Polluted air, water and gases can destroy the nature and can affect the world. Due to pollution world is badly affected and it is due to replicate

of nature resources which is cause of destruction. . From many years the carbon dioxide emissions climate changes & pollution became the one of main issue worldwide. Low income nations are growing day by day and they attract the FDI & industrialization day by day. Developed countries have laws against the carbon emission per capita, collect high taxes and use latest equipment?s which control the carbon emission. They sign the agreements for FDI the quality of environment .whole world is very serious regarding this issues .it seems to be import handing by developing countries. The share of total has risen from 25 percent to 31 percent during the period in the 1990 to the 2000s.Support from earlier literature, this study assumes that energy use, foreign direct investment and stock marketing trading activity are the main determinants of CO2 .Now constantly world is using technology which can improve and control the causes it could settle by using technology and focus on improvement. In low levels of growth, both quantity and the intensity of environmental degradation are partial to an impact of subsistence financial activity going on their source, basic also to limited quantity of environmental wastes. As cultivation and resource extraction intensifies and industrializations take off together in which resource weakening and waste generation accelerate. Reduction of resources and waste production increases as industrialization decreases and resource finding and agricultural activities strengthen. At higher numbers of growth, structural modify towards information based industries and services and more efficient technologies, improved demand for environmental quality bring cause leveling-off and a steady turn down of environmental degradation.

2.2 Empirical studies

One of important problem discussed today is the intra countriesdifference which is turning the poor countries into the pollution heaven or not. Themain reason is that today we are replacing trees with houses and polluted air with carbon gages .To becomesdeveloped country we are installing the industries and that causes the pollution .where standard of quality against pollution it is very low, pollution

concentrated industries will have a greater incentive to move, because in poor countries there is very good chance of growing and taxes are also low as compare to the developed countries. On the other hand upper middle countries may deliberately rate too low environmental harm, in the order to draw extra foreign direct investment (Dean, Lovely, & Wang, 2004). Now a day, it is generally believed that FDI is good for economic development. Consequently, developing nations receive strategies so they will attract a greater amount FDI. Over the past two erasFDIgrow very quickly. For instance, Normal FDI inflows tosub-SaharanAfrica Similarly as rise with the ratio starting with 0. 5% in the 1980s will 1. 46% in the 1990s also 3.94% in 2000-2010. In the same time, worldwide global warming need to get a significant worldwide attention as an aftereffect from climate change about created by human in shape of greenhouse gasses is dangerous to environment. There is need to worry for Africans nation as they total under value their environment to attract FDI. The multination companies which are polluting more environments and their emission are very high they prefer the country with low environment standard, which might have negative impact on environment. (Grossman et al., 1991). Thus, the connection among environments and FDI is theoretically ambiguous. On the experimental level, a lot of people investigations bring those FDI-environment relationships and tried the contamination safe house theory. Hossain (2012) investigatedan econometric examination to carbon dioxide emissions, money related growth, energy consumption, remote exchange Also urbanization about japan the short-run unidirectional causalities are spotted starting with Energy utilization & trade openness on carbon dioxide emissions, starting with exchange openness on energy consumption, from carbon dioxide outflows to prudent growth, and starting with careful development with trade openness. It wasfound that Likewise duration of the time passes, higher energy utilization done by japan gives Ascent on more carbon dioxide outflowsin this manner of nature's territory was make polluted extra.In low levels of growth, both quantity and the intensity of environmental degradation are partial to an impact of subsistence financial activity going on their source, basic also to limited quantity of environmental wastes. As cultivation and resource extraction intensifies and industrializations take off together in which

resource weakening and waste generation accelerate. Reduction of resources and waste production increases as industrialization decreases and resource finding and agricultural activities strengthen. At higher numbers of growth, structural modify towards information based industries and services and more efficient technologies, improved demand for environmental quality bring cause leveling-off and a steady turn down of environmental degradation. But in reverence of economic growth, trade openness and growth of the environmental quality found to be normal good in the long-run. Kulionis (2013)examined the relationship among renewable energy consumption, CO2 emissions and economic growth in Denmark using annual data from 1972-2012.That causal association between variables may be investigative using Granger causality test over varskeleton. Approach reveals to that there may be no proof of combination around the test variables. The experimental conclusion starting with Granger causality test by 1st contrasts determinedly spinesa unidirectional causality advancing as about renewable energy utilization to carbon dioxide discharges. The conclusion about this plan and also dark side of the point is that there may be no statistically life-threatening causality "around the financial development and also renewable energy consumption, which helps the lack of bias theory. Furthermore intimates that energy preservation strategies must not have critical way lying around financial development. Those experimental results about this shows that there maybe no causality around financial development. Cowan, Chang, Inglesi-Lotz, and Gupta (2014), investigated nexus from claiming power consumption, financial development & CO2 discharges in the BRICS nations. Utilizing panel causality Investigation. Here is no proof from claiming granger causality "around GDP&CO2 emission over India&china. In addition, power utilization will be found with granger make carbon dioxide outflows completeIndian and Furthermore actually similarly as there is no Granger causality in the middle of power utilization and CO2emissions for Russia, Brazil, China and SouthAfrica. Dritsaki and Dritsaki (2014)studied Economic growth, CO2 emissions and energy consumption in the case of Bangladesh by using cointegration test and by finding the results that indicated energy consumption has a positive and significant impact on economic growth where as carbon emission has a negative and insignificant effect,

ensuring that economic growth in Bangladesh can be achieved without degrading the quality of the environment.Chaudhary, Shah, and Bagram (2012)investigated populace Density, FDI&carbon dioxide emissions; research attempt for Pakistan ARDL also lapse review model. In this study they found thatin long run it have relationship but in short term it is not applicableDinah&Shih-Mo (2014). Carbon dioxide emissions, energy consumption & financial development are not applicable for Vietnam. Experimental result doesn't help environmentKuznetscurve hypothesis on Vietnam. Yet, the co-combination&Granger causality test outcomes validate a progressive relationship around CO2emissions, energy consumptions and growth.The short run bidirectional relationship between Vietnam?s income and foreign direct investment inflows implies that the increase in Vietnam revenue will attract more capital from abroad. Inversely, foreign direct investment inflow is also driver fromcountrywide income growth. Banerjee andRaman (2012) investigated a few determinants of carbon dioxide emissions establishedin combination withBangladesh and the evaluations from demanding ARDL model give support of the presence from safeguardingacoordination association "around those variables. While Increased Dickey-Fuller test. The estimates of the vector error-correction model represent a solid long-run causal stream from industrialization and number of growth on CO2emissions On Bangladesh.At same time that from development in FDI may be generally addedadditionally statistically insignificant. Carbon dioxide emissions, streamlined yield growth, number growth &FDI inflows on regular log would non stationary as far as both ADF also KPSS tests with diverse requests from demanding integrative. Amin et al. (2012) studied the causal relationship among energy use, CO2 emissions and Economic Growth in Bangladesh multivariate vector error correction model to check the stationarity properties, they have employed Augmented Dickey Fuller (ADF) test and found that variables are stationary either at their level or at first differences. Utilizing Johansen cointegration method, those experimental discoveries demonstrate that there exists long run cointegrationamong the variables. They focuses irrational that there will be no causal association between financial development & CO2,

guaranteeing that budgetary development to Bangladesh might a chance to be attained without debasing those nature of the surroundings. Palamalaiet al. (2014) investigated the relationship in between the energy consumption, carbon dioxide emission, and financial development &exchange Indiausingperrson unit root test, co-integration test and vector lapse revision model. Those investigation exhibits a long-run association in the middle of differentsources for energy consumption, investment growth, CO2emissions and exchange India. The discoveries uncover that expansion on CO2emissions prompts accomplish large amount of financial action for India. In addition, figure outside exchange impacts from the different sources about non-renewable energy utilization in the long turn. However, the energy utilization doesn?t altogether contribute towards pushing remote trade, but rough petroleum, in the short-run. Farhani and Ben Rejeb (2012) investigated energy consumption, economic growth and carbon dioxide emissions for MENAregion applies the panel unit root tests, panel cointegration methods and panel causality test and the finding of this study reveals that there is no causal link between GDP and EC; and between CO2 emissions and EC in the short run. The conclusion indicates that a raise for energy utilizations might prompt raise decided withchange& CO2 emission. Clinched alongside addition, we might say that financial development and compensationnot delay the strategies about productive energy. However, in the long run there is a unidirectional causality running from gdp and carbon dioxide discharges to economic. Their aftereffect proposes that Mauritius might not control its carbon dioxide discharges in the final one three decades. Yinchuan (2010) investigated FDI on China?s carbon dioxide emissions: a period arrangement decline investigation on consumer those OLS system to run the time arrangement. The originator figures that remote money penetration needs a huge negative impact on the growth of CO2emissions, which may be because of the spill-over impact. The writer figures negative impact for household financing also farming worker contribute greater part for aggregate carbon dioxide discharges again the same period. foreign direct investment is being attracted by financial development to be able to increase economic growth and to accelerate carbon

dioxide emission (Frankel et al., 1999).Second, to consumer efficient financial intermediate and prosperous seems favorable loans activities, for consumer which makes it easier to buy greater price items like house, vehicles, refrigerator, ac, washing machine, and so on., as well as they emmitt Co2 (Sadorsky et al., 2010). Moreover, listed enterprises to lower financing costs is helped by stock markets developments , increases financing channel, and mix up operating risks, hence to purchase fresh installation and spend in new and fresh task and then rise energy consumptions & carbon emissions (Dasgupta et al., 2001).

Srinivasan (2010) investigated the relationship between Energyuse, carbon dioxideproduction,financial development &exchange India utilizing throughPerron unit root test, Gregory & Hansen co-integration test furthermore check vector lapse revision model. Those considerdisplaysin long-run association in the middle of different sources about energy consumption, financial growth, CO2emissions similarly exchange India. The experimental result confirm that financial development can rate for different sources for energy utilization i.e. coal, rough petroleum, power furthermore characteristic gas.Understanding component of carbon dioxide emissions .which are very necessary for the energy and green policy making. Support from earlier literature, this study assumes that energy use, foreign direct investment and stock marketing trading activity are the main determinants of CO2. Environment value has a lot of measurements. Is exist are influenced with the air we breathe, the excellence we see over nature, those water we drink and the mixed carrier about species which we observe. The gainfulness from claiming our asset done and handling merchandise and benefits may be impacted toward climate, precipitation and the supplements in the soil (Grossman & Krueger, 1995). From past studies, CO2emissions promptpolluted air while generating goods. In addition, that investigated that outside exchange impacts those different sources from claiming non-renewable Energy utilization in the long term. However, thatenergy utilization doesn?t essentially contributetowards trade, but rough petroleum, in the short-run. Acharyya (2009)investigated FDI, growth and carbon emission for India.The study findsa positive statistically significant ofFDI inflow on GDPgrowth. On the other hand, negative result showed for FDI inflow

and CO2emission. heilakhoshnevis and Bahram (2014) examined the relationship between economicgrowths, energy usecarbon dioxideemission to Iran. Utilizing the ARDL approach, confirm the presence environmentalKuznetscurve. Yandi, Shakouri, and Omri, Daly, Rault, &Chaibi (2015)studied carbon dioxide emissions, energy utilization and financial development for MENA countries over the period 1990-2011. The results indicate that there exists a causal relationship between energyuse operation&financial development. Dritsaki (2014) investigated the causal relationship in between the energy consumption, financial development & carbon dioxide emission using dynamic methodology. In the long run, there is a unidirectional relationship with carbon dioxideand energyconsumptions. Ogutu, D?Andrea, furthermoreGhil (2017) investigated the carbon dioxideemission andeconomic development in the UK? The investigation finds a short and long run causality running the middle of the variables. It also found a unidirectional causality from CO2to RGDP; RGDP to outside exchange ratio; remote exchange proportion on CO2and outside exchange proportion to last energy utilization. Those effects further uncover andchanged u-shape association between of carbon dioxide&GDP, thus, EKC theory confirmed in the UK. Those conclusions, however, are in CO2emissions could influence GDP negatively and the impact might increment CO2emissions to need a U-shape association for GDP. Linh&lin (2015)investigated causal relationsbetween CO2 emissions, energy consumption, financial development and FDI in the mossy cup oak populous Asian countries 1980 -2010, granger causality test. The individuals panel test uncovers on affirmation that serves the individuals naturalKuznets twist (EKC), In addition that CO2emissions start on rot toward compensation level undertakes should 8.9341(in logarithms). Applying granger causality test, they figure the individuals vicinity from guaranteeing both short moreover long-run causality relations around these variables, and fiscal growth, FDI, energy use &CO2emissions starting with guaranteeing 12 Asianoverrun mugs oak populous countries achieve cooperation?s with Japanese. However, FDI inflows might found inside and out that doesn't elevate nature's turf damage inside these 12 Asian countries concerning delineation a board test. Samanta et al. (2015) studied the changebreakdown of emissions,

FDI, growth also Imports to GCC (UAE, Bahrain, Saudi Arabia, Oman, Qatar and Kuwait) countries: a macroeconomic examination the technique received will be dependent upon those vector slip revision model (VECM) discovered that FDI inflows have a noteworthy difference on gdp. And the expand for level of carbon dioxide discharges may be exceptionally identified with FDI also product imports for which GCC economies bring not taken under account in their ecological attention. Furthermore, FDI inflows and merchandise imports need aid associated more than other variables studied, for example, carbon dioxide and gdp. Jeong Furthermore Kim (2013)studied carbon dioxide emissions, energy consumption, gdp, furthermore outside directInvestment in ANICS nations and the plan analyzes those causal relationship between CO2emissions, energy consumption, yield furthermore FDI (foreign direct investment) for ANICs (Asian recently industrialized countries: Hong Kong, republic of Albania about Korea, Singapore, Taiwan) starting with 1971 to 2011. Those result dependent upon VECM (Vector slip revision Model) intimated that there will be a long run cointegrated relationship the middle of carbon dioxide emissions, energy consumption, yield &FDI. Those bring about shortages backs the naturalKuznets bend theory in this district. Short run flow indicates the Granger causality starting with budgetary development will carbon dioxide emanations. There will be anadditionally backhanded causality starting with FDI (inward FDI furthermore outward FDI) with CO2emissions in the short run. In the long run, there might have been unidirectional granger causality from the opposite variables to carbon dioxide outflows. Papie? Furthermore ?miech (2013)studiedCO2 emissions, energy utilization &economic development in the vice versa one assembly nations in view of an sustenance information examination and the paper inspects causal relations between carbon dioxide emissions, energyconsumption furthermore financial development using board vector slip revision demonstrating systems dependent upon those panel information to those vise gradgroup nations again the time 1992?2010. Panel cointegration tests indicate the presence from requesting long-run connections "around carbon dioxide emissions, energy utilization &financial development. Those long-run agreements demonstrate that

energy utilization needsa sure and statistically huge effect with respect to outflows. However, those effects got can't confirm the natural Kuznets bend (EKC) theory to the vise gradlot nations. The result from appealing board short run Granger causality tests uncover the presence from securing bidirectional causality betweencarbon dioxide outflows furthermore financial development. Around experimental examine literature, money related development mainly incorporate those stock market, development from requesting fiscal intermediations, remote immediate financing (foreign immediate investment), et cetera. Finalized alongside reality, a large body of exploration suggests that financial improvement have turned into important analytics piece should stick economic development, also basically plays a certain part previously, changing investment development. Levine (1997)argues that because of the business sector clashes initiated toward the existence about exchanging expense &data cost, the part of financial intermediation will be to kill the individuals clashes thus Similarly as should goes up the savings also streamline those money ration. Han (2001)holds that well-built monetary business sectors also smooth birch transferring mechanisms are helpful to sparing increment furthermore successful transformation from sparing should investment, et cetera Push capital accumulation, innovation propel also monetary development in the long run. Also, the short-run flow recommends unidirectional connection starting with energyuse on carbon dioxide releases also starting with energy utilization will financial development in the vise grad assembly nations. The discoveries show that there is no causality running from carbon dioxide discharges with energyuse&from economic development to energyconsumption. The multination?s companies which are polluting more environments and their emission are very high .They prefer the country with low environment standard, which might have negative impact on environment. (Grossman et al., 1991). Thus, the connection among environments and FDI is theoretically ambiguous. On the experimental level, a lot of people investigations bring those FDI-environment relationships and tried the contamination safe house theory. Hossain (2012) investigated an econometric examination to carbon dioxide emissions, money related growth, energy consumption, remote exchange also development about japan the short-run unidirectional

causalities are marked starting with energy utilization & trade openness on carbon dioxide emissions, starting with exchange openness on energy consumption, from carbon dioxide outflows to prudent growth, and starting with careful development with trade openness. Nademi &Namibia (2011)studied outflows financial growth settled alongside a few developing nations, The paper may should guess the relationship around pollution list (CO2emissions) and money related growth inside chosen nations comprise of Chile ,Austria, Belgium, Denmark, Canada, France, Ireland, Korea ,Japan, Sweden also United States from claiming America. Results show that the nonlinearities impact from claiming financial development looking into carbon dioxide discharges exists throughout these nations an 2000-2007 concerning illustration an opposite Kuznets bend. Outcomes indicate that, ahead of the edge quality from claiming monetary growth (3.15%), those outcomes for financial development ahead CO2 is negative anyway emulating the edge esteem for budgetary development (3.15%), those consequences about financial development on carbon dioxide will be sure. Therefore, those Kuznets bend theory may be rejected in, about Chile, Austria, Belgium, Denmark, Canada, France, Ireland, Korea, Japan, Sweden&United States of America In nations 2000-2007. Muftau, Iyoboyi, &Areola (2014)investigated an experimental examination of the association the middle of CO2 emission & budgetary development done west Africa utilizing an altered impacts board relapse model executed inside an vector slip revision schema furthermore outcomes about cointegration demonstrate that there is An long-run harmony relationship between CO2emission, horrible down home item &different pertinent covariates. Those experimental outcomes show that previously, in long run, there might make an N-shape association those working for reward also CO2emission &that the EKC hypothesis might a chance to be not sponsored for West Africa.Around experimental examine literature, money related development mainly incorporate those stock market, development from requesting fiscal intermediations, remote immediate financing (foreign immediate investment), et cetera. Finalized alongside reality, a large body of exploration suggests that financial improvement have turned into important analytics

piece should stick economic development, also basically plays a certain part previously, changing investment development. Levine (1997)argues that because of the business sector clashes initiated toward the existence about exchanging expense &data cost, the part of financial intermediation will be to kill the individuals clashes thus Similarly as should goes up the savings also streamline those money ration.Chaibibesides Boujelbene (2008) studied CO2emissions, energy utilization also economic development in Tunisiaaccurate discoveries show that investment growth, energy utilization and carbon dioxiderelease need support related in the long-run furthermore supply exactly confirmation from claiming wasteful use of energy done Tunisia, since natural mass tend encountered with towndecline because of deindustrialization, engineering invented, government cottage with risefaster over financial development and in the short run, outcomes support the argument that financial development exerts a certain ?causal? impact for energyuse growth. Hossain (2014) studied the impact of carbon emissions on economic growth in Nigeria using a multiple regression model. The method of data analysis is the ordinary least squares (OLS) technique. The result reveals that carbon emissions have negative impact on economic growth in Nigeria. The study has shown that cement production is rapidly becoming a major source of carbon emissions in the country.Danladi and Akomolafe (2013) contemplated outside immediate Investment, financial growth, and naturaldistress: proof from Nigeria utilizing granger causality test. Those outcomes uncover that there will be no causality in the middle of the development rate for gdp furthermore FDI, development rate of gdp and carbon dioxide. The best causality discovered will be a unidirectional connection between those growths from demandingFDI grows and the development rate about pollution. The course may be from growth rate about FDI of the development rate from claiming contamination. Hbler Also Keller (2010)investigated energy reserve funds by means of FDI? Experimental proof starting with generating nations for that time 1975 -2004 applies board estimation systems and tests. They utilize macro level information on 60 developing countries including other possibility determinants about energyconcentrations. The effects don't supportthose theories

that FDI inflows reduceenergy intensities about developing country as a rule. Relations from demandingFDI for country-specific qualities don't show remarkable effects, possibly. Zerbo (2015) studied carbon dioxide emissions, growth, energy utilization and outside exchange decided alongside sub-Sahara African nations to those period protected by those information varies crosswise over countries: 1981-2010 utilizing those ARDL certain trying approach will cointegration. The outcomes indicate that Energy utilization needs an impact previously, expanding CO2 emissions previously, Botswana, Kenya, and SouthAfricafurthermore Togo in the passing. Profession openness may be not addition to enhance surroundings environment in Kenya same time it does for south. Furthermore, those ponder apply the Togo also Yamamoto (1995)granger causality test, also discover that Kenya will be reliant on energy same time monetary development and Energy utilization have An impartial relationship in Cameroon, Senegal, south Africa&Togo, suggesting that anenergy proficiency strategy might make actualized. However, those econometric effects if a chance to be deciphered with care, as those variables would discovered to be weakly even over the examine time. Kivyiro Furthermore Arminian (2014)studied carbon dioxide emissions, energy consumption, investment growth, also outside regulate investment: causality examination to sub-SaharanAfrica In light of an autoregressive disseminated slack model those outcomes In light of an autoregressive disseminated slack model suggest That the variables move together in the long run (cointegration) in general of the countries. The individual?s results likewise support the individual?snaturalKuznetsturn principle in the instances for DRC, Kenyabesides Zimbabwe. Moreover, FDI appears to extend CO2emissions to a rate of those countries, same the long run those opposite impact Comes will make viewed previously. The individuals overgrown mug oak essential unidirectional granger causality cooperation run beginning for those inverse variables with CO2emissions, to separate variables Granger making CO2emissions for dissimilar countries, Besides starting with gdp (gross domestic product) for FDI. Granger causality running with CO2emissions seems less unfavorable in the nations the place those ordinaryKuznets bend theory. Otherwise, the causality associations shift significantly between the nations. Kahsai, Nondo,

Schaeffer, Furthermore Gebremedhin (2012)studied energy utilization also investment Growth: proof from COMESA unit root tests are connected will test those level from claiming resolution between financial development furthermore energy consumption, panel co-integration andan element panel slip revision model. Those examine the level about joining the relationship of GDP also energy utilization and characterthat the variables might combine something like a being. In the second step, they examine the long-run link the intermediate of energy usage also Gdp; our impacts give strong conformation that GDP and energy usage move together in the long-run. In the third step, they measure the individuals? long-run association also test to connection using panel-based error amendment models. In addition find a long-run bidirectional support the middle of GDP &Energy usage. . Cowan, Chang, Inglesi-Lotz, and Gupta (2014), investigated connection from demandingcontrol consumption, financial development & CO2 discharges in the BRICS nations. Utilizingpanel causality Investigation test. Here is no proof from claiming granger causality "around GDP& CO2 emission over India&China. In addition, power utilization will be found with granger make carbon dioxide outflows complete Indian and Also actually similarly as there is no granger causality in the middle of controlconsumption and CO2 emissions for Russia, Brazil, China and SouthAfrica.

Tiwari (2011) examined energy consumptions, carbon dioxide release furthermore financial growth: evidencesinitial with India utilizing Granger's approach in var schema. Those study figures proof about no cointegration relationship around those test variables in the area about structural breakdowns. Further, static examination demonstrates that importantenergy utilization doesn't granger-cause GDP, inasmuch as GDP granger-causes essential energy utilization. Since gdp demonstrates 75.9% of the figure slips difference for essential energy consumption, while grade energy utilization clarifies just 0.96% of the conjecture lapse difference about gdp.developingnations receive strategies so they will attract a greater amount FDI. Over the past two erasFDIgrow very quickly. For instance, Normal FDI inflows to sub-Saharan Africa Similarly as rise with the ratio starting with 0. 5% in the 1980s will 1. 46% in the 1990s also 3.94% in 2000-2010. In the same

time, worldwide global warming need to get a significant worldwide attention as an aftereffect from climate change about created by human in shape of greenhouse gasses is dangerous to environment. There is need to worry for Africans nation as they total under value their environment to attract FDI. The multination companies which are polluting more environments and their emission are very high they prefer the country with low environment standard, which might have negative impact on environment. (Grossman et al., 1991).Thus, the connection among environments and FDI is theoretically ambiguous. On the experimental level, a lot of people investigations bring those FDI-environment relationships and tried the contamination safe house theory. Hossain (2012) investigated an econometric examination to carbon dioxide emissions, money related growth, energy consumption, remote exchange Also urbanization about japan the short-run unidirectional causalities are spotted starting with Energy utilization & trade openness on carbon dioxide emissions, starting with exchange openness on energy consumption, from carbon dioxide outflows to prudent growth, and starting with careful development with trade openness. It wasfound that Likewise duration of the time passes, higher energy utilization done by japan gives Ascent on more carbon dioxide outflows in this manner of nature's territory was make polluted extra.In low levels of growth, both quantity and the intensity of environmental degradation are partial to an impact of subsistence financial activity going on their source, basic also to limited quantity of environmental wastes.FDI on China?s carbon dioxide emissions: a period arrangement decline investigation on consumer those OLS system to run the time arrangement. The originator figures that remote money penetration needs a huge negative impact on the growth of CO2emissions, which may be because of the spill-over impact. The writer figures negative impact for household financing also farming worker contribute greater part for aggregate carbon dioxide discharges again the same period. foreign direct investment is being attracted by financial development to be able to increase economic growth and to accelerate carbon dioxide emission (Frankel et al., 1999).Second, to consumer efficient financial intermediate and prosperous seems favorable loans activities, for

consumer which makes it easier to buy greater price items like house, vehicles, refrigerator, ac, washing machine, and so on., as well as they emmitt Co2 (Sadorsky et al., 2010). Moreover, listed enterprises to lower financing costs is helped by stock markets developments , increases financing channel, and mix up operating risks, hence to purchase fresh installation and spend in new and fresh task and then rise energy consumptions & carbon emissions (Dasgupta et al., 2001).

Srinivasan (2010) investigated the relationship between Energyuse, carbon dioxide production, financial development &exchange India utilizing throughPerron unit root test, Gregory & Hansen co-integration test furthermore check vector lapse revision model. Those consider displays in long-run association in the middle of different sources about energy consumption, financial growth, CO2 emissions similarly exchange India. The experimental result confirm that financial development can rate for different sources for energy utilization i.e. coal, rough petroleum, power furthermore characteristic gas.Understanding component of carbon dioxide emissions .which are very necessary for the energy and green policy making. Support from earlier literature, this study assumes that energy use, foreign direct investment and stock marketing trading activity are the main determinants of CO2. Environment value has a lot of measurements. Is exist are influenced with the air we breathe, the excellence we see over nature, those water we drink and the mixed carrier about species which we observe. The gainfulness from claiming our asset done and handling merchandise and benefits may be impacted toward climate, precipitation and the supplements in the soil (Grossman & Krueger, 1995). From past studies, CO2emissions prompt polluted air while generating goods. In addition, that investigated that outside exchange impacts those different sources from claiming non-renewable Energy utilization in the long term. However, that energy utilization doesn?t essentially contributetowards trade, but rough petroleum, in the short-run. As cultivation and resource extraction intensifies and industrializations take off together in whichresource weakening and waste generation accelerate. Reduction of resources and waste production increases as industrialization decreases and resource finding and agricultural activities strengthen. At

higher numbers of growth, structural modify towards information based industries and services and more efficient technologies, improved demand for environmental quality bring cause leveling-off and a steady turn down of environmental degradation. But in reverence of economic growth, trade openness and growth of the environmental quality found to be normal good in the long-run. Kulionis (2013)examined the relationship among renewable energy consumption, CO2 emissions and economic growth in Denmark using annual data from 1972-2012. That causal association between variables may be investigative using Granger causality test over var skeleton. Approach reveals to that there may be no proof of combination around the test variables. The experimental conclusion starting with Granger causality test by 1st contrasts determinedly spines a unidirectional causality advancing as about renewable energy utilization to carbon dioxide discharges. The conclusion about this plan and also dark side of the point is that there may be no statistically life-threatening causality "around the financial development and also renewable energy consumption, which helps the lack of bias theory. Furthermore intimates that energy preservation strategies must not have critical way lying around financial development.Those experimental results about this shows that there may be no causality around financial development. Cowan, Chang, Inglesi-Lotz, and Gupta (2014), investigated nexus from claiming power consumption, financial development & CO2 discharges in the BRICS nations. Utilizing panel causality Investigation.Here is no proof from claiming granger causality "around GDP& CO2 emission over India&china. In addition, power utilization will be found with granger make carbon dioxide outflows complete Indian and Furthermore actually similarly as there is no Granger causality in the middle of power utilization and CO2 emissions for Russia, Brazil, China and South Africa. Adhikari and Chen(2013)expectedenergyuse furthermore financial growth: a panelcointegration dissection for creating nations panel unit root test methods, panel co-integrative test &panel changing ordinary minimum square (DOLS) are utilized. In this study80 nations would partitioned for three wage group, which are upper white collar money. To the entirety panel about countries the experimental effects uncover a long-run correspondingcourse relationship the middle of

energyuse also financial development and also for each one gathering from middle income countries. On financial development to middle income countrieshave more working salary they find the solid linking running from energy use, furthermore a solid connection which runs from financial increment with energy use for low income nations. These discoveries clearlyestablish that in the long-run to these nations energy utilization require apositive& statistically remarkablecontrol over financial development. Cialani (2017) investigated carbon dioxide emissions, GDP furthermore trade a panel cointegrationapproach. The outcomes starting with those lapses revision models recommended that there are long term connections in the middle of those variables to that entire test and to non-OECD nations. Finally, granger causality tests suggestion at that there may be bi-directional temporaryconnection between for every capita gdp also universal exchange to the entirety test stillin between for every capita gdp also carbon dioxide discharges to OECD countries. Associated (2014) studied those authority for outside trade, energy utilization & wage a head carbon dioxide outflows sustenance information cointegration Investigation as stated by the outcomes sure relationship may be found the middle of carbon dioxideproductions and energy consumption, for every capita wage &trade openness. On the other hand, trade opennessreduces carbon dioxidedischarge in the long run. Findingsshow that in the short run unidirectional causality starting with carbon dioxidereleases to exchange openness (TRD). Additionally there will be unidirectional connection starting with for every capita wage (GDP) should carbon dioxide emissions& energy utilization (EN). Over the past two erasFDIgrow very quickly. For instance, normal FDI inflows to sub-Saharan Africa Similarly as rise with the ratio starting with 0. 5% in the 1980s will 1. 46% in the 1990s a 3.94% in 2000-2010. In the same time, worldwide global warming need to get a significant worldwide attention as an aftereffect from climate change about created by human in shape of greenhouse gasses is dangerous to environment. There is need to worry for Africans nation as they total under value their environment to attract FDI. The multination companies which are polluting more environments and their emission are very high they preferthe country with low environment standard, which might have negative impact on environment.It is

important to evaluate whether foreign direct investment inflows to less developed countries are connected with higher level of pollutions. The previous literature on this subject has focused on whether foreign direct investment inflow to less developed countries has been prompted by lax environmental regulations. The majority of the work on the ?pollution haven? Theory is created for case investigations also firm-level examination. Those experimental confirmation need been mixed, with different investigations discovering no backing to this theory ((Eskeland & Harrison, 2003; McDermott, 2009; Mani & Wheeler, 1998; Wagner & Timmins, 2009). A could be allowed demonstration of the uncertainty in the experimental effects over investigations lies in the contrasts in the growth (or question) furthermore in the experimental approach including gaps previously, econometric methodologies, absence of identical information furthermore is proxies. In this study, we are concerned with whether foreign direct investment flows and stock trading activity for a set of developing nations, low income and middle income. We examined the relationship between foreign direct investment, stock trading activity and CO2 emissions in these countries. In particular, we conduct a panel data analysis the relationship among foreign direct investment, stock trading activity with CO2 emissions. Therefore, we are able to determine whether increases of foreign direct investment and stock trading activity in pollution-intensive sectors are associated with higher CO2 emissions. Understanding elementsof carbon dioxide emissions which are very necessary for the energy and green policy making. Support from earlier literature, this study assumes that energy use, foreign direct investment and stock marketing trading activity are the main determinants of CO2. Environment value has a lot of measurements. Our exists are influenced with the air we breathe, the excellence we see over nature, those water we drink and the mixed carrier about species which we observe. The gainfulness from claiming our asset done and handling merchandise and benefits may be impacted toward climate, precipitation and the supplements in the soil (Grossman & Krueger, 1995). (Grossman et al., 1991) short run flow recommended bidirectional causality starting with gdp should TRD furthermore TRD2 (is the square from claiming LTRD on test expanding impact about trade volume). Around experimental examine literature, money

related development mainly incorporate those stock market, development from requesting fiscal intermediations, remote immediate financing (foreign immediate investment), et cetera. Finalized alongside reality, a large body of exploration suggests that financial improvement have turned into important analytics piece should stickeconomic development, also basically plays a certain part previously, changing investment development. Levine (1997)argues that because of the business sector clashes initiated toward the existence about exchanging expense &data cost, the part of financial intermediation will be to kill the individuals clashes thus Similarly as should goes up the savings also streamline those money ration. Han (2001)holds that well-built monetary business sectors also smooth birch transferring mechanisms are helpful to sparing increment furthermore successful transformation from sparing should investment, et cetera Push capital accumulation, innovation propel also monetary development in the long run.

Chapter 3

Data and Methodology

3.1 Data Description

The once a year data on carbon dioxide emissions, stocks traded/turnover, foreign direct investment and control variables energy imports, GDP growth, , Domestic credit make available by financial sector (DCFS)Manufacturing, value added, and Energy use is taken from World bank Indicators (WBI, 2016).

Stock market trading activity is proxies by stocks turnover. World Bank define the turnover ratio (i.e., stock market trading activity) is the value of domestic shares traded divided by their market capitalization. The value is annualized by multiplying the monthly average by 12. The mathematical expression for firm's share turnover ratio is as follows:

$$STO_t = \frac{Domesticsharestraded}{Marketcapitalization}$$

Market capitalization which is also known as market value is the share price times the number of shares outstanding.

CO2 emanations are measure of carbon dioxide discharged into the air because of the exercises of a particular individual and association or group.

Gross domestic product development is characterized as yearly rate development rate of Gross domestic product at advertise costs in light of fixed neighborhood

cash. Totals depend on U.S. dollars. Gross domestic product which is the overall of gross esteem comprised by every single citizen maker in the economy in addition to any item expenses and less any sponsorship excluded in the estimation of the items. It is figured without making assumptions for decline of manufactured resources or for consumption &corruption of normal assets.

Net energy imports are estimated as energy use less production, both estimated in oil reciprocals. A negative esteem demonstrates that the nation is a net exporter. Energy utilize alludes to utilization of essential energy before change to opposite end-utilize powers, which is equivalent to indigenous generation in addition to imports and stock changes, less fares and fills provided to boats and air ship occupied with global transport.

Energy utilize alludes to utilization of essential energy before change to opposite end-utilize energizes, which is equivalent to indigenous creation in addition to imports and stock changes, short fares and powers provided to boats and airplane occupied with worldwide transport.

Foreign direct investment are the net inflows of investment to acquire a lasting management asset (10 percent or a greater amount of voting stock) in an undertaking working in an economy other than that of the financial specialist. It is the aggregate of value capital, reinvestment of income, other long haul capital, and here and now capital as appeared in a critical position of installments. This arrangement indicates net inflows (new speculation inflows less disinvestment) in the detailing economy from outside financial specialists, and is partitioned by Gross domestic product.

Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis, except for credit to the focal government, which is net. The budgetary division incorporates fiscal experts and store cash banks, and also other monetary organizations where information are accessible (counting partnerships that don't acknowledge transferable stores yet do acquire such liabilities as time and reserve funds stores). Cases of other budgetary organizations are back and renting organizations, cash banks, protection partnerships, annuity reserves, and outside trade organizations.

Full example informational collection is from 1980 to 2016 for every one of the factors. The example comprises of following 93 rising and creating nations and the rundown of nations chose and area is given in supplement a.

3.2 Methodology

The situation often arises in financial modeling where we have data including both time series and cross-sectional elements and such a data set is called as a panel data. The easiest way to deal with this type of data is to estimate a regression, which involve assessing a single equation on all the data together, so that the dataset for y is loaded up into a single column containing all the cross-sectional and time-series observations, and similarly all of the observations on each explanatory variable would be loaded up into single columns in the x matrix. The variables use in the mean is extend from 0.349(CO2_EMISSIONS) CO2 power (kg per kg of oil comparable energy utilize) carbon dioxide emanations from strong fuel utilization allude for the most part to outflows from utilization of coal as a energy source. Carbon dioxide emanations are those coming from the consuming of non-renewable energy sources and the fabricate of bond. They incorporate carbon dioxide delivered amid utilization of strong, fluid, and gas powers and gas flaring. to 2621.808 (ENERGY_USE).where energy utilize (kg of oil equal per capita)Energy utilize alludes to utilization of essential energy before change to opposite end-utilize energizes, which is equivalent to indigenous creation in addition to imports and stock changes, less fares and fills provided to boats and air ship occupied with global transport. Standard deviation which is the measure of scattering or deviation from mean is go from 0.219(CO2_EMISSIONS) to 2361.285(ENERGY_USE).Skewers demonstrates that the majority of the qualities are decidedly skewed. If there should be an occurrence of Kurtosis, if the esteem is equivalent to 3 then typical dispersion and example is called mesocratic. In the event that the esteem is > 3 at that point design is called leptokurtic that are related with all the while crested and fat tail. The mean is extend from 3.703 (GDP-GROWTH) Yearly rate advancement rate from asserting gross domestic

product toward business area costs subordinate upon relentless adjacent cash. Totals require help subordinate upon enduring 2010 u. S. Dollars. Gross domestic product is the entire for unpleasant quality included Eventually Toms examining at tenant creators in the economy notwithstanding whatever thing forces Whats all the more less At whatever sponsorships excluded in the nature of the things. It might be discovered without making reasonings to decay rom guaranteeing made stakes or for low energy being greater vice of trademark resources. Be that as it may, when estimation of kurtosis is under 3 it is called platy kurticand is related with at the same time less topped and has more slender tail. Every one of the qualities in the table 4.1.1 are demonstrating the leptokurtic conduct aside from MANFVA_GDPManufacturing, esteem included (% of GDP) Manufacturing alludes to businesses having a place with ISIC divisions 15-37. Esteem included is the net yield of an area in the wake of including all yields and subtracting middle sources of info. It is ascertained without making findings for deterioration of created resources or consumption and debasement of characteristic assets. The starting point of significant worth included is dictated by the International Standard Industrial Classification (ISIC), amendment 3. Note: For VAB nations, net esteem included at factor cost is utilized as the denominator. The mean is range from 88.673 DCFS Domestic credit gave by monetary area (%of GDP) GDP per capita is total national output separated by midyear populace. Gross domestic product is the total of gross esteem included by every inhabitant maker in the economy in addition to any item assessments and less any appropriations excluded in the estimation of the items. Then this equation would be estimated in the usual fashion using OLS. We use fixed effect model. In statistics, a fixed effects model is a statistical model in which the model parameters are fixed or non-random quantities. This is in contrast to random effects models and mixed models in which all or some of the model parameters are considered as random variables.

The fixed effect assumption is that the individualspecific effects are correlated with the independent variables. If the random effects assumption holds, the random effects model is more efficient than the fixed effects model. However, if this

assumption does not hold, the random effects model is not consistent. The Durbin-WuHausman test is often used to discriminate between the fixed and the random effects model.

We use the fixed effect model, which is based on hausman specification test. We also reject the generalized least square method model based on breusch pagan LM test. Accordingly given the nature of data in our full sample 93 countries .the fixed effect model (which works under the condition of strict erogeneity) is found to be consistent and efficient. The case of cubic functional form our fixed regression model can be written as;

$$CO_{2(i,t)} = \beta_0 + \beta_1 FDI_{(i,t)} + \beta_2 StockTurnover_{(i,t)} + \beta_3 Controls_{(i,t)} + ui + \gamma_t + \varepsilon_{(i,t)} \tag{3.1}$$

Where i represent country (here we used 93 countries) CO_2 is carbon emission;t shows time; $\varepsilon_{(i,t)}$ is the error term; ui represent country specific effect; γ_t offers time specific effect.

Chapter 4

Empirical Results and Discussion

4.1 Descriptive Statistics

Table 4.1 exhibits the measurable conduct of the information for the time of 1980-2017. The mean is extend from 0.349(CO_2_EMISSIONS) CO_2 power (kg per kg of oil comparable vitality utilize) carbon dioxide emanations from strong fuel utilization allude for the most part to outflows from utilization of coal as a vitality source. Carbon dioxide emanations are those coming from the consuming of non-renewable energy sources and the fabricate of bond. They incorporate carbon dioxide delivered amid utilization of strong, fluid, and gas powers and gas flaring. to 2621.808 (ENERGY_USE). where Energy utilize (kg of oil equal per capita)Energy utilize alludes to utilization of essential vitality before change to opposite end-utilize energizes, which is equivalent to indigenous creation in addition to imports and stock changes, less fares and fills provided to boats and air ship occupied with global transport. Standard deviation which is the measure of scattering or deviation from mean is go from 0.219(CO_2_EMISSIONS) to 2361.285(ENERGY_USE).Skewers demonstrates that the majority of the qualities are decidedly skewed. If there should be an occurrence of Kurtosis, if the esteem is equivalent to 3 then typical dispersion and example is called mesokurtic. In the event that the esteem is > 3 at that point design is called leptokurtic that are related with all the while crested and fat tail. The mean is extend from 3.703

(GDP-GROWTH) Yearly rate advancement rate from asserting gross domestic product toward business area costs subordinate upon relentless adjacent cash. Totals require help subordinate upon enduring 2010 U.S. Dollars. Gross domestic product is the entire for unpleasant quality included Eventually Tom's examining at tenant creators in the economy notwithstanding whatever thing forces What's all the more less At whatever sponsorships excluded in the nature of the things. It might be discovered without making reasonings to decay from guaranteeing made stakes or for fatigue What's greater corruption of trademark resources.. Be that as it may, when estimation of kurtosis is under 3 it is called platykurtic and is related with at the same time less topped and have more slender tail. Every one of the qualities in the table 4.1.1 are demonstrating the leptokurtic conduct aside from MANFVA_GDP Manufacturing, esteem included (% of GDP) Manufacturing alludes to businesses having a place with ISIC divisions 15-37. Esteem included is the net yield of an area in the wake of including all yields and subtracting middle sources of info. It is ascertained without making findings for deterioration of created resources or consumption and debasement of characteristic assets. The starting point of significant worth included is dictated by the International Standard Industrial Classification (ISIC), amendment 3. Note: For VAB nations, net esteem included at factor cost is utilized as the denominator. The mean is rang from 88.673 DCFS Domestic credit gave by monetary area (% of GDP) GDP per capita is total national output separated by midyear populace. Gross domestic product is the total of gross esteem included by every inhabitant maker in the economy in addition to any item assessments and less any appropriations excluded in the estimation of the items. It is figured without making findings for deterioration of manufactured resources or for consumption and debasement of characteristic assets. Information are in current U.S. dollars. Moreover, kurtosis demonstrates that data are related with all with all the while topped and fat tail.Table 4.1exhibits the measurable conduct of the information for the time of 1980-2016. The mean is extend from 0.349(CO2_EMISSIONS) CO2 power (kg per kg of oil comparable energy utilize) carbon dioxide emanations from strong fuel utilization allude for the most part to outflows from utilization of coal as a

energy source. Carbon dioxide emanations are those coming from the consuming of non-renewable energy sources and the fabricate of bond. They incorporate carbon dioxide delivered amid utilization of strong, fluid, and gas powers and gas flaring. to 2621.808 (ENERGY_USE).where Energy utilize (kg of oil equal per capita)Energy utilize alludes to utilization of essential energy before change to opposite end-utilize energizes, which is equivalent to indigenous creation in addition to imports and stock changes, less fares and fills provided to boats and air ship occupied with global transport. Standard deviation which is the measure of scattering or deviation from mean is go from 0.219(CO2_EMISSIONS) to 2361.285(ENERGY_USE).Skewers demonstrates that the majority of the qualities are decidedly skewed. If there should be an occurrence of Kurtosis, if the esteem is equivalent to 3 then typical dispersion and example is called mesocratic. In the event that the esteem is ¿ 3 at that point design is called leptokurtic that are related with all the while crested and fat tail. The mean is extend from 3.703 (GDP-GROWTH) Yearly rate advancement rate from asserting gross domestic product toward business area costs subordinate upon relentless adjacent cash. Totals require help subordinate upon enduring 2010 u. S. Dollars. Gross domestic product is the entire for unpleasant quality included Eventually Tom's examining at tenant creators in the economy notwithstanding whatever thing forces What's all the more less At whatever sponsorships excluded in the nature of the things. It might be discovered without making reasoning to decay from guaranteeing made stakes or for fatigue whats greater corruption of trademark resources. Be that as it may, when estimation of kurtosis is under 3 it is called platykurtic and is related with at the same time less topped and has more slender tail. Every one of the qualities in the table 4.1.1 are demonstrating the leptokurtic conduct aside from MANFVA_GDP Manufacturing, esteem included (% of GDP) Manufacturing alludes to businesses having a place with ISIC divisions 15-37. Esteem included is the net yield of an area in the wake of including all yields and subtracting middle sources of info. It is ascertained without making findings for deterioration of created resources or consumption and debasement of characteristic assets. The starting point of significant worth included is dictated by the International

Standard Industrial Classification (ISIC), amendment 3. Note: For VAB nations, net esteem included at factor cost is utilized as the denominator. The mean is range from 88.673 DCFS Domestic credit gave by monetary area (% of GDP)GDP per capita is total national output separated by midyear populace. Gross domestic product is the total of gross esteem included by every inhabitant maker in the economy in addition to any item assessments and less any appropriations excluded in the estimation of the items. It is figured without making findings for deterioration of manufactured resources or for consumption and debasement of characteristic assets. Information are in current U.S. dollars.. Moreover, kurtosis demonstrates that data are related with all with all the while topped and fat tail.

TABLE 4.1: Descriptive statistics.

	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob.	Obs
CO_2_EMISSIONS	1.885859	0.300	15.9	0	2.37753	1.953	8.369	2481.276	0.000	3062
GDP_GROWTH	3.724715	3.700	179.2	-64	7.321569	0.398	8.127	1515.336	0.000	3156
ENERGY_USE	936.508	2049.700	4893	9.6	810.8697	2.385	13.071	6989.499	0.000	2604
ENERGY_IMPORTS	-41.3748	35.000	100	-1942	197.4719	-3.431	17.449	14402.610	0.000	2565
FDI_GDP	3.12222	2.700	89.5	-82.9	7.321569	13.917	23.484	33980.000	0.000	3007
DCFS	30.1784	72.200	166.5	0	26.56135	1.198	4.743	494.094	0.000	2916
STOCK_TURNOVER	37.62714	9.600	1721.5	0	94.55868	5.880	56.211	167172.200	0.000	689
MANFVA_GDP	15.00841	16.700	43.5	0	7.457447	0.161	2.977	5.895	0.052	1351

TABLE 4.2: Multi-collinearity checks.

Panel A: Correlation Matrix

	CO_2	GDP_GROWTH	ENERGY_IMPORTS	ENERGY_USE	FDI_GDP	DCFS	STOCK_TURNOVER	MANFVA_GDP
GDP_GROWTH	1.00000							
energy_use	-0.0712	1.00000						
fdi_gdp	0.2020	0.1939	1.00000					
trade	0.1221	0.1460	0.3377	1.00000				
dcfs	0.0458	0.4207	0.1079	0.4953	1.00000			
stock_turn r	0.0821	-0.0230	-0.0619	-0.0746	0.0521	1.00000		
energy_imp	0.0207	-0.2531	0.1071	0.2127	0.0588	0.1095	1.00000	
MANFVA_GDP	0.0302	0.2139	-0.2051	0.2169	0.4426	0.1416	0.0327	1.00000

Panel B: Variance Inflation Factors

Variable	Coefficient-Variance	Uncentered-VIF	Centered-VIF
ENERGY_IMPORTS	1.08E-09	1.256262	1.234334
ENERGY_USE	5.33E-12	2.084387	1.237724
DCFS	1.13E-08	3.029894	1.332298
FDI_GDP	1.04E-07	1.121750	1.030963
GDP_GROWTH	1.60E-06	1.881636	1.052711
MANFVA_GDP	7.64E-07	7.668987	1.121686
Const.	0.000296	10.22359	0.0000

4.2 Correlation Matrix

Table 4.2 demonstrates the consequences of multicollinearity checks. Panel (A) of Table 42 introduces the relationship matrix, while panel (B) reports change inflations factors for explanatory variables. Among illustrative weak relationship are observations. For more proof, variance inflation factors (VIFs) are as registered VIFq = 1/(1 - q), here q is the connection coefficient pick up from relapsing informative variable, q, on all staying logical factors in demonstrate. VIF's outcomes are basically free from any genuine multicollinearity among the illustrative factors. In Board B of table 4.2 The fluctuation inflation factors declare, going from 1.030963 to 1.332298, are prove that there isn't critical multicollinearity between these informative factors.

4.3 Choice of Model

The purpose is to examine is in the impacts of funding liquidity on bank risk takings. To this end, we evaluate random effect panel data model our determination of model depends on Likelihood Ratio (Common versus Fixed Effects) and Hausman Test (Fixed versus Random Effects). Table 4.3 demonstrates that null hypothesis is rejected for likelihood ratio and Hausman test for both period and cross sections, hence country-year fixed effects panel model is used.

TABLE 4.3: Cross section fixed effect test (Likelihood Ratio).

Effect test.	**Statistic.**	**d .f.**	**Prob..**
Cross section f	61.231946	(89,1254)	0.0000
Cross section Chi-square.	2264.698449	89	0.0000
Correlated Random Effects - Hausman Test			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	73.532180	7	0.0000
Test period fixed effects (Likelihood Ratio)			
Effects Test	**Statistic**	**d.f.**	**Prob.**
Period F	4.950102	(24,1319)	0.0000
Period Chi-square	116.512934	24	0.0000
Test period random effect - Housman Test			
Test summary	**Chi-Sq Statistic**	**Chi-Sq d.f.**	**prob**
Periods random	112.888285	7	0.0000

Note: these are the null along with alternate hypotheses are tested for the choice of model: (i) For common versus fixed effects; $\boldsymbol{H}_0$*: more appropriate is Common effect,* $\boldsymbol{H}_1$*: more appropriate is Fixed effects, (ii) in favor of fixed versus random effects;* $\boldsymbol{H}_0$*: more appropriate is Random effects,* $\boldsymbol{H}_1$*: more appropriate is fixed effect*

4.4 Multivariate Regression Analysis

Table 4.4.1 reports the results for carbon emissions, foreign direct investment and stock market trading activity through use of multivariate regression investigation. We make use of linear panel data models with both the country and year fixed effects to calculate approximately the outcome. The explanatory in variable are foreign direct investment and stock market trading activity.The coefficients of foreign direct investment and stock market trading activity are showing insignificant results for full sample. GDP growth shows significant and positive results from three models. This means that increase in GDP growth also increases carbon emissions. Energy use also significant and positively impact the carbon emissions. These findings are in line with Saidi and Hammami (2015) and Pao and Tsai (2011). All these studies are based on two stances; Natural Kuznets Curve(EKC) speculation and yield energy nexus. The EKC speculation hypothesizes that the connection between financial improvement and the earth looks like a rearranged U bend. That is, natural contamination levels increment as a nation grows yet starts to diminish as rising earnings passa defining moment. The second strand is identified with the yield energy nexus. This nexus proposes that monetary

advancement and yield might be together decided on the grounds that higher financial improvement requires more energy utilization.

TABLE 4.4: Panel data models: Full sample.

	(1)	(2)	(3)
VARIABLES	**Model 1**	**Model 2**	**Model 3**
gdp_growth	0.00872***	0.0214**	0.0242**
	(0.00297)	(0.00859)	(0.00915)
energy_use	0.00307***	0.00326***	0.00332***
	(3.07e-05)	(2.32e-05)	(3.24e-05)
fdi_gdp	-0.00363	-0.00751	-0.00714
	(0.00408)	(0.00876)	(0.00917)
Trade	-0.000771**	-0.00558***	-0.00626***
	(0.000375)	(0.000481)	(0.000521)
Dcfs		0.00775***	0.00731***
		(0.000486)	(0.000513)
stock_turnover		-0.000180	-0.000210
		(0.000167)	(0.000198)
energy_imp			0.000896**
			(0.000413)
manfva_gdp			0.00283
			(0.00328)
Constant	-0.625***	-0.819***	-0.874***
	(0.0414)	(0.0483)	(0.0692)
Observations	2,243	610	561
R-squared	0.908	0.956	0.957
Number of year	35	35	35
Country FE	YES	YES	YES
Year FE	YES	YES	YES

Robust standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 4.5 shows the results for low income counties sample. Most of the variables have similar finding as in aforementioned full sample results. However, for these countries the explanatory variable foreign direct investment has a significant and negative impact while stock turnover has significant positive impact on carbon emissions. The empirical results are consistent with Baek and Koo (2008). They find negative long-run relationship between FDI and carbon emissions for both China and India; that is, lax environmental policy tends to attract more FDI inflow of pollution intensive industries from developed countries. Moreover, Pao et al. (2011) find strong bidirectional causality between emissions and FDI. The

evidence seems to support the pollution haven and both the halo and scale effects. Therefore, in attracting FDI, developing countries should strictly examine the qualifications for foreign investment or to promote environmental protection through the coordinated know-how and technological transfer with foreign companies to avoid environmental damage. Finally, manufacturing value added is also significant and positive for these countries. According to the statistical analysis of United Nations Industrial Development report manufacturing value added is important indicator of carbon emissions. This pointer catches the ecological parts of industrialization and touches upon the effectiveness of vitality use in modern generation. CO_2 discharges are exceedingly important for assembling as they represent around 80 for every penny of Greenhouse Gas (GHG) emanation happening in this segment. Most CO_2 outflows are caused by consuming petroleum products (discharge from ignition) and non-renewable energy sources are non-sustainable power source assets with just constrained saves in the Earth. Therefore, CO_2 outflow per unit of assembling esteem included is considered as an exceptionally appropriate pointer that catches both these measurements of the natural manageability of modern generation. From one perspective, it mirrors the measure of discharge with respect to the volume of creation and, on the other; it screens the sort and productivity of vitality utilized. A more elevated amount of emanation would recommend to approach creators that a change to utilizing inexhaustible sorts of vitality is prudent and also the presentation of vitality effective innovation in assembling. Assembling represents around one fifth of aggregate CO_2 discharges and different sources are power age, warm generation and transportation. The aggregate sum of CO_2 emanations developed quickly from 2000 to 2010 yet has stayed consistent as of late. In 2000, the aggregate sum of CO_2 emanations from assembling was assessed at 3886 million tons and it achieved its most elevated amount in 2013 since when no further development has been watched.

TABLE 4.5: Panel data models: Low income countries.

	(1)	(2)	(3)
VARIABLES	**Model 1**	**Model 2**	**Model 3**
gdp_growth	0.00678**	0.00233	0.00175
	(0.00325)	(0.00810)	(0.00827)
energy_use	0.00261***	0.00206***	0.00213***
	(4.74e-05)	(0.000115)	(9.91e-05)
fdi_gdp	-0.0157***	-0.0334**	0.0138
	(0.00325)	(0.0133)	(0.0199)
Trade	0.00123***	-0.000997	-0.00366**
	(0.000355)	(0.00129)	(0.00129)
Dcfs		0.0133***	0.0108***
		(0.00125)	(0.00149)
stock_turnover		0.00111***	0.000694**
		(0.000329)	(0.000252)
energy_imp			0.00128*
			(0.000679)
manfva_gdp			0.0302***
			(0.00604)
Constant	-0.626***	-0.545***	-0.906***
	(0.0326)	(0.0704)	(0.122)
Observations	1,199	214	175
R-squared	0.880	0.802	0.850
Number of year	35	22	22
Country FE	YES	YES	YES
Year FE	YES	YES	YES

Robust standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Table 4.6 shows the results for middle income counties sample. For model (1) results indicate that energy_use is significant and positive at 99% percent confidence interval while trade is significant and negative. For model (2), gdp_growth, and Dcfs are significant and positive at 99% while trade is negative. For model (3) gdp_growth, energy_use, and Dcfs are significant and positive at 99%. Trade and manfva_gdp are significant and negative. Moreover, the addition of variables in the model (1) through model (3) improves the Adjusted R-squared from 88% to 95.4%. The Adjusted R-squared captures the variation explained by the explanatory variables in dependent variable.

TABLE 4.6: Panel data models: Middle income countries sample.

	(1)	(2)	(3)
VARIABLES	**Model 1**	**Model 2**	**Model 3**
gdp_growth	0.00486	0.0334***	0.0339***
	(0.00457)	(0.00753)	(0.00952)
energy_use	0.00304***	0.00335***	0.00339***
	(3.86e-05)	(3.57e-05)	(3.90e-05)
fdi_gdp	-8.88e-05	0.00814	-0.00294
	(0.00728)	(0.00795)	(0.00855)
Trade	-0.00330***	-0.00694***	-0.00619***
	(0.000517)	(0.000551)	(0.000570)
Dcfs		0.00761***	0.00778***
		(0.000572)	(0.000578)
stock_turnover		-0.000296	-0.000103
		(0.000280)	(0.000175)
energy_imp			0.000123
			(0.000401)
manfva_gdp			-0.0176***
			(0.00431)
Constant	-0.192***	-0.916***	-0.678***
	(0.0658)	(0.0830)	(0.0827)
Observations	1,044	396	386
R-squared	0.880	0.951	0.954
Number of year	35	35	35
Country FE	YES	YES	YES
Year FE	YES	YES	YES

Robust standard errors in parentheses
**** p<0.01, ** p<0.05, * p<0.1*

Chapter 5

Conclusion

In this study, we empirically examine whether foreign direct investment flows and stock trading activity are associated with higher levels of pollution. In exacting, we conduct the panel data analysis of the connection between stock trading activity, foreign direct investment, and CO2 emissions. The results indicate that foreign direct investment and stock turnover have no impacts on carbon emissions. However, for low income countries, the study found that both variables have positive and significant effect on carbon emissions. In low income countries manufacture to GDP will be positive because increase in manufacture wills increases carbon emission. Where as in the middle income countries have negative effect due to the cleaner technology. Provided for the a aforementioned research observations, there are many point in which policy maker have to focus and have to make effective policy by policymaker about effective environment and global warming . In spite of the study for example foreign direct investment and high stock market activity may increase the economic growth; however, it will also cause higher CO2emissions.From many years the carbon dioxide emissions climate changes pollution became the one of main issue worldwide. Low income nations are growing day by day and they attract the FDI & industrialization day by day. Developed countries have laws against the carbon emission per capita collect high taxes and use latest equipments are uses which control the carbon emission. FDI also play an important role in carbon emission and financial intermediate is other source. Banks and financing institute offers loans on easy installment and other facilities

and a huge amount is financed to multinational and national companies FDI have major effect of carbon emission. Investors should be concerned about the long term output of climate change as carbon emission harmful in long term. . This study is also important for policy makers to identify and control the factors that increase the carbon emissions. This is because these carbon emissions impacts the Ozone layer and harmful for the environment.

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Appendix A

TABLE 5.1: Countries included in the sample from different regions.

Sr. No.	Year	Country	Income_group
1	1990	Afghanistan	Low income
2	1990	Benin	Low income
3	1990	Cameroon	Low income
4	1990	Comoros	Low income
5	1990	Congo, Dem. Rep.	Low income
6	1990	Cote d'Ivoire	Low income
7	1990	El Salvador	Low income
8	1990	Ethiopia	Low income
9	1990	Haiti	Low income
10	1990	Liberia	Low income
11	1990	Madagascar	Low income
12	1990	Malawi	Low income
13	1990	Mali	Low income
14	1990	Mozambique	Low income
15	1990	Nepal	Low income
16	1990	Niger	Low income
17	1990	Tanzania	Low income
18	1990	Togo	Low income
19	1990	Zimbabwe	Low income
20	1990	Armenia	Lower middle income
21	1990	Bangladesh	Lower middle income

Sr. No.	Year	Country	Income_group
22	1990	Congo, Rep.	Lower middle income
23	1990	Egypt, Arab Rep.	Lower middle income
24	1990	Georgia	Lower middle income
25	1990	Ghana	Lower middle income
26	1990	Guatemala	Lower middle income
27	1990	Honduras	Lower middle income
28	1990	India	Lower middle income
29	1990	Indonesia	Lower middle income
30	1990	Kenya	Lower middle income
31	1990	Kyrgyz Republic	Lower middle income
32	1990	Lesotho	Lower middle income
33	1990	Mauritania	Lower middle income
34	1990	Moldova	Lower middle income
35	1990	Myanmar	Lower middle income
36	1990	Nicaragua	Lower middle income
37	1990	Nigeria	Lower middle income
38	1990	Pakistan	Lower middle income
39	1990	Papua New Guinea	Lower middle income
40	1990	Philippines	Lower middle income
41	1990	Senegal	Lower middle income
42	1990	Sri Lanka	Lower middle income
43	1990	Sudan	Lower middle income
44	1990	Swaziland	Lower middle income
45	1990	Syrian Arab Republic	Lower middle income
46	1990	Tajikistan	Lower middle income
47	1990	Ukraine	Lower middle income
48	1990	Uzbekistan	Lower middle income
49	1990	Vanuatu	Lower middle income
50	1990	Vietnam	Lower middle income
51	1990	Yemen, Rep.	Lower middle income

Sr. No.	Year	Country	Income_group
52	1990	Zambia	Lower middle income
53	1990	Albania	Upper middle income
54	1990	Algeria	Upper middle income
55	1990	Angola	Upper middle income
56	1990	Belarus	Upper middle income
57	1990	Bosnia and Herzegovina	Upper middle income
58	1990	Botswana	Upper middle income
59	1990	Brazil	Upper middle income
60	1990	Bulgaria	Upper middle income
61	1990	China	Upper middle income
62	1990	Colombia	Upper middle income
63	1990	Costa Rica	Upper middle income
64	1990	Cuba	Upper middle income
65	1990	Dominica	Upper middle income
66	1990	Dominican Republic	Upper middle income
67	1990	Ecuador	Upper middle income
68	1990	Fiji	Upper middle income
69	1990	Gabon	Upper middle income
70	1990	Iran, Islamic Rep.	Upper middle income
71	1990	Iraq	Upper middle income
72	1990	Jamaica	Upper middle income
73	1990	Jordan	Upper middle income
74	1990	Kazakhstan	Upper middle income
75	1990	Lebanon	Upper middle income
76	1990	Libya	Upper middle income
77	1990	Macedonia, FYR	Upper middle income
78	1990	Malaysia	Upper middle income
79	1990	Maldives	Upper middle income
80	1990	Mauritius	Upper middle income
81	1990	Mexico	Upper middle income

Sr. No.	Year	Country	Income_group
82	1990	Namibia	Upper middle income
83	1990	Panama	Upper middle income
84	1990	Paraguay	Upper middle income
85	1990	Peru	Upper middle income
86	1990	Romania	Upper middle income
87	1990	Serbia	Upper middle income
88	1990	South Africa	Upper middle income
89	1990	Thailand	Upper middle income
90	1990	Tonga	Upper middle income
91	1990	Tunisia	Upper middle income
92	1990	Turkey	Upper middle income
93	1990	Turkmenistan	Upper middle income