



Journal for Social
Science Archives

Journal for Social Science Archives

Online ISSN: 3006-3310

Print ISSN: 3006-3302

Volume 3, Number 4, 2025, Pages 85 – 111

Journal Home Page

<https://jssarchives.com/index.php/Journal/about>



Stock Market Development, Institutional Quality and Foreign Direct Investment nexus in Pakistan

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ARTICLE INFO

Article History:

Received: July 18, 2025
Revised: August 26, 2025
Accepted: September 22, 2025
Available Online: October 05, 2025

Keywords:

Stock Market Development; Institutional Factors; Portfolio Investment; OLS; CUSUM; CUSUMSQ

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ABSTRACT

Stocks Markets Development (SMD) and Foreign Direct Investment (FDI) play an important role to promote economic growth in any country. The aim of the study is to investigate the relationship between SMD, FDI and Institutional Quality (IQ) in case of Pakistan. The study used different macroeconomic variables and Institutional factors like, SMD and FDI as dependent variables in two different econometric models, and Portfolio Investment (PFI), Exchange Rate (ExR), Inflation Rate (IR) and Domestic Credit to Private Sector (DCPS) as independent variables. Other factors include, Government Effectiveness (GE), Rule of Law (RoL), Control of Corruption (CoC) and Political Stability (PS). Annual Data is analyzed from 1996 to 2021 by applying Ordinary Least Square (OLS) Method. Results concluded that, SMD positively impacted by PFI, FDI and ExR and Institutional Factors including GE and RoL also positive impacted on SMD. While other Institutional Factors including CoC and PL put negative impact on SMD. IR also negatively impacted on SMD. In the second regression, FDI is positively impacted by SMD, DCPS, and IR and negatively impacted by ExR in case of Pakistan. Institutional Factors including GE, RoL and CoC also positively impacted on SMD and only PS negatively impacted on FDI. The study also applied CUSUM and CUSUM Square test for Stability purposes.



1. Introduction

Financial markets are important for the economic success of a country. They act as intermediaries in transferring funds from savers to investors. The stock market plays an essential role in the growth of commerce and industry which ultimately affects the economy of the country to a large extent. This is the rationale that the industrial bodies, government advisors and even the central bank of the country keep a close eye on the activities of the stock market. With the ever-growing importance of stock markets, an overwhelming number of studies have been carried out worldwide to investigate the link which exists between stock market development and economic growth. However, most of these studies focused on developed countries. Since studies analyzing this link are scant in the African region, this paper endeavors to scrutinize the relationship between equity market development and economic growth in Pakistan. To this end, this paper analyses the relationship between stock market development, banking development and economic growth in a unified framework using annual panel data for the period 1996-2001, through a dynamic panel vector error correction model. The results seem to suggest that stock market development plays an important role in generating gains in terms of economic growth.

Every economy contains a large portion of its monetary system that is dedicated to the capital market. Proponents of securities exchanges emphasize the significance of the newly developed financial exchange in the process of further developing venture execution. A properly operating securities exchange is expected to reduce the value-added costs of capital for businesses while enabling people to incur greater actual costs and taking on greater levels of risk. Because financial transactions have the potential to bring in money from global portfolios and further develop the variety of local assets, the amount of capital that is available for investment in development may increase. As prudent authorities such as the World Bank, IMF, and ADB began securities exchange improvement programmers for developing business sectors in agricultural nations during the 1980s and 1990s, they discovered that emerging securities exchanges had developed substantially since the middle of the 1990s. Recognizing the significance of the securities exchange for the development of the financial sector, these authorities began these programmed after realizing the significance of the securities exchange. Over the course of the past ten years, the market capitalization of developing business sector nations has more than quadrupled, increasing from approximately \$2 trillion in 1995 to almost \$5 trillion in 2005 (Yartey, 2008). Emerging markets currently account for more than 12% of the total market capitalization of the world and are expanding at a rapid rate.

Elements contributing to the development of the financial industry have been the subject of research to a great extent of late. Garcia and Liu (1999), Demirguc-Kunt and Levine (1996), Yartey and Adjasi (2007), and a large number of other economists have studied the connection between the growth of financial business sectors and macroeconomic factors, monetary changes, and other country-specific factors, as well as the growth of various components of the monetary framework. In addition, numerous other researchers have investigated the connection between the growth of different parts of the financial framework and the growth of different financial business sectors. In this particular field, Garcia and Liu (1999) were two pioneers who made important contributions. Research done in the past has demonstrated that the growth of financial markets is inextricably linked to the progression of economic development and the implementation of monetary reforms. The growth of the entire financial sector has tracked the stock market in association with it during its history. The expansion of other components of the financial system to describe it in another way is supported by the rise of the stock market.

Research conducted by Jensen and Murphy (1990), Levine (2005), Obstfeld (1994), Bencivenga et al. (1996), has demonstrated that the relevance of the financial trade in furthering monetary development may be demonstrated in a number of different ways. These tactics include increasing market liquidity, reducing the expenditure of reinvigorating reserve funds, working on improving corporate administration, and expanding worldwide gambling sharing. As a result of the significance of the financial exchange, an increasing number of research are being conducted to identify the elements that are contributing to its development. While a large number of studies have been conducted to identify the factors that have an impact on the growth of financial exchanges, numerous pieces of research have produced divergent points of view on the relationship between the development of these aspects and the growth of securities exchanges.

1.1.1 Foreign Direct Investment and Stock Market Development

Examples of global capital flows include foreign direct investment (FDI), international portfolio investment (foreign debt, foreign aid and FPIs) and foreign portfolio investment (IPI). The stream of funds known as Foreign Direct Investment (FDI) is an essential source of financing for developing countries. But too many investors are reluctant to invest in these programs, and instead seek the returns from foreign-made goods or services through their own factories. This type of investment brings an opportunity for the host country to acquire engineering and administrative expertise as well as human capital. Chen (1992). According to research by Raza et al (2010), foreign direct investment (FDI), along with changes in exchange rate (local savings and ER), has a positive impact on Pakistan's developing stock markets. The term "foreign direct investment" , abbreviated as "FDI", refers to investments from outside the country and this financial assistance, technology development, access to markets and direct foreign investment not only improve production levels in sectors with competitors but also to economies of scale and link impact is done.

Despite the fact that many developing countries are making significant efforts to get rid of international aid and international debt that they need to settle from their limited international currency reserves, which usually have a devastating impact on their fission, many of these countries have fds to increase their domestic investment and savings. There is a variety of incentives for multinational corporations (MNCs) to engage in international quick purchases. According to Hammer (1960), the standard that determines how to site such investments 'where' leads to a large variety of different challenges. Nevertheless, the importance of the ownership, location and internality (OLI) parts of the analytic paradigm for MNCs is supported by the basic study done by Dunning (1977).

The rising tide of foreign direct investment (FDI) results in increased capital stockpiles, the restoration of bombed modern organisations and areas, the shipment and transfer of brand-new innovation that increases production, talented labour from abroad, increased levels of economic development, a decrease in joblessness, the development of the financial industry, and the ability to access global business markets. (Haq, Hashmi and Patnaik, 2017; Alphro, Chanda, Saik and Klemli Ozkin, 2004) [Haq, Hashmi and Patnaik, 2017] In spite of the potentially beneficial effects of FDI, governments must exercise caution and ensure that their macroeconomic policies do not encourage domestic speculation or investment funds.

1.1.2 Institutional Standards and Stock Market Development

The stability, liquidity and efficiency of the stock market in any country depend on the quality of governance in this place. The government needs to build institutions with extensive experience leading markets that are accountable and transparent for all outcomes. Our study utilises annual stock returns and country level governance indicators for 25 developed countries from 1996 to 2001. The fixed effect estimation suggests that stock market performance and governance indicators share a positive relationship. Our findings suggest that high quality of governance is associated with higher returns on stock. Institutional quality is a preconditioned for financial developed that set the direction of change to reduce transaction costs and agency costs and make profitable projects available to firms that subsequently leads to higher demand for equity financing. These findings have significant implications for stock market policymakers and standard asset pricing models that only include market risk factors to predict future expected stock returns.

According to the findings of the Lee and Kim (2020) investigations, governance indicators such as control of corruption, (ii) regulatory monitoring standards, and (iii) protection of ownership rights are able to help and contribute to the development of increasing levels of confidence in the investment portfolio.

1.2 Problem Statement

The stock market has evolved into a key market that contributes to economic growth by boosting capital growth and maintaining economic expansion. In the US, there is now an upper bound of \$1 trillion in derivatives trades which are traded on international markets such as exchanges with strong regulations like China. When you add up all these factors together, it becomes clear that we need to re-evaluate how our economy operates today — not only what's technically true but also politically correct." Stock markets may affect economic activity through the creation of liquidity. The Pakistani stock market is notoriously unpredictable as it is often hit by sudden shocks and unexpected developments in the news. The Pakistani stock market is long-lasting in nature and recovers quickly aftershocks during the same period. Participation of individual investors in financial markets has increased over time, resulting in markets being significantly more "public." Their behaviour, feelings and perceptions all constantly impact stock prices, something that traditional models are unable to account for. The market as a whole is significantly more sensitive to the strange stupor of individual investors' strange behaviour than any individual investor. They are capable of creating price disparities as well as unclear volatility in stock prices. The outlook for behaviour finance tries to explain the seemingly random volatility in stock prices. What could be the reason for this? According to our information, this is the first study to show the link between the growth of Pakistan's stock markets, the quantum of foreign direct investment and the potential of the country's institutions.

1.3 Research Gap

The fundamental objective of this investigation is to investigate the relationship between the enhancement of financial exchange and the approach of Foreign Direct Investment (FDI) in the standard text of institutional principles. After reviewing a number of articles and publications on the topic of the growth of stock markets and foreign direct investment (FDI), it was hypothesised that Pakistan's institutional components have not been the subject of a great deal of research up until this point. The amount of research that has been conducted on this topic is extremely limited.

How may the utilisation of institutional standard terms as terms of connection have an impact on the growth of Pakistan's stock exchange in the context of foreign direct investment (FDI)? The difference between my investigation, which is to examine what the implications of institutional variables are for Pakistan's stock exchange, and unfamiliar direct speculation is that my investigation is to check those implications (FDI).

1.4 Research Questions

The research questions of the current study are as follows;

- What is the link between Foreign Direct Investment (FDI) and Pakistan's Stock Market Development.?
- What is the link between Foreign Direct Investment (FDI), Institutional Standards and Pakistan's Stock Market Growth.?

1.5 Research Objectives

Specific purpose shows the larger determination of the study while general objectives indicate specific issues that we drive to observe.

1.5.1 Specific Objectives

The specific objectives of the current study are as follows;

- To investigate the impact of foreign direct investment on stock market development in Pakistan.
- To investigate the impact of institutional standards on stock market development in Pakistan.
- To investigate the impact of institutional standards on foreign direct investment (FDI) in Pakistan.

1.6 Significance of the Study

The review that is now taking place investigates the connection between uncharted direct speculation, institutional standards, and the enhancement of the stocks market in the Islamic Republic of Pakistan. In this analysis, we only figure out what Pakistan's financial exchange improvement is supposed to be used for as a result of the institutional rules and inflows of new direct interest in this region. The focus also examines the presentation of institutional standards with regard to the development of Pakistan's stocks market as well as the influx of foreign direct speculation.

2. Reviews of Literature

2.1 Literature Reviews

Ghulam et al (2025) explores the connection between Pakistan's financial exchange development and the country's by and large monetary development utilizing yearly time series information that stretches from 1980 to 2020. The scientists thought about different factors like unfamiliar direct speculation (FDI), human improvement record, total national output (GDP), securities exchange size and exchange. ARDL and ADF are the methodology used to investigate information on

unambiguous factors. The outcomes propose that rising the volume of securities exchanges and market capitalization in a non-industrial nation like Pakistan could bring about monetary development. This was demonstrated by the outcomes.

Derouez et al. (2025) concentrates on macroeconomic and institutional components that add to the development of securities exchanges. They do so utilize board information from 42 arising nations somewhere in the range of 1990 and 2004. The examination utilized GMM estimatetechniques, as well as various factors including pay levels, GDP, banking industry development, individual capital streams and securities exchange liquidity. All are utilized as parts of institutional norms, political dangers, the rule of law and administrative guidelines. As per the consequences of this article, pay levels, GDP, development of the financial business, confidential capital streams and securities exchange liquidity are major microeconomic highlights that firmly anticipate securities exchange development in developing business sector nations. There are major areas of strength for a between political risk, discipline and regulation and regulatory guidelines. This is somewhat on the grounds that political gamble, discipline and regulation and administrative principles all work on the capacity of unfamiliar monetary figures.

Li et al. (2024) investigated the varieties of securities exchange development in agricultural nations utilizing pooled standard least square (OLS), irregular and fixed-efficiencetechniques. The information for the review was from 1994 to 2014 and was finished with those years. This article investigates a few developing business sectors including Argentina, Brazil, Colombia, Mexico, Peru, Czech Republic, Greece, Poland, Portugal, Russia, Turkey, China, Hong Kong, Indonesia, India, Malaysia, Philippines, Republic of Korea, Thailand, South Africa and Singapore. Different nations referenced in this article incorporate the Czech Republic, Poland, Russia and Turkey. The review considered different variables including unfamiliar direct speculation (FDI), monetary development, foundation improvement, investment funds, expansion, exchange transparency, swapping scale, banking industry advancement and liquidity of securities exchanges. As per trial research, unfamiliar direct venture (FDI), banking industry development and liquidity in the securities exchange were the principal factors that decided the development of the financial exchange. Other significant variables incorporate money rate, exchange receptiveness, expansion, reserve funds, framework improvement and monetary development. A trial model was then used to survey the effect of these determinants on the development of securities exchanges in creating markets.

Islam et al. conducted research in 2023 to investigate the crooked relationship that exists in Pakistan between administrative metrics and the steady growth of the controllable securities exchange. The annual time series data was examined between the years 1996 and 2020. To achieve experimental results, methods of economic approach such as common integrated mean group and enhanced mean group have been deployed. These methods have been applied in many research studies. Environmental methods such as ARDL and NARDL are used for the purpose of drawing experimental conclusions. The exploration group utilized different factors, some of which were Stock Market Development (SMD), Rule of Law (RL), Regulatory Quality (RQ), Voice as well as Accountability (VA), Political Stability (PS) and Absence of Terrorism (AT). As per the discoveries of ARDL studies, Pakistan's SMD isn't impacted by the country's political dependability or nonappearance of viciousness. Law and order in Pakistan don't quickly affect social and monetary turn of events (SMD) while voice and responsibility altogether affect SMD. The quality of regulations is very important and has a detrimental effect on SMDs.

In a clear manner, Qureshi et al (2021), investigates the one-of-a-kind connection between foreign direct investment (FDI), inflation, and the turn of events in the financial market (2021). The Panel Vector Autorigranus (PVAR) model was utilised in this study with regard to the overall method for second gauges to survey connection steady in both produced and non-industrial nations between the years 1996 and 2018. These nations include of both long-established states and newly independent nations. The study looked at a variety of factors, such as contamination, exchange, foreign direct speculation, gross domestic product, domestic credit to the secret region, and exchanging scale. The findings indicate that (main areas of strength for bad) guidelines and to an extreme (low) level of contamination increases venture and monetary growth.

Bashar et al (2021) in his report analyses the impact of the institutional and governance factors on foreign direct investment (FDI) and economic development in brics and mint countries. He is referring to a growing international interest not only for diversification by creating manufacturing hubs, but also for expanding supply chains through private production channels. This includes developing biofuels as an alternative source or innovation infrastructure that provides cheaper feedstock than oil; establishing biorefinery facilities with low cost inputs such solar energy cells and small modular electronics modules from which are produced products like cell phones and computer chips; using technology developed internally within state-owned enterprises rather than having them used locally at high scale – both resulting more local employment opportunities and higher GDP growth among BRICS member states.

Rahman et al (2021) in his study on India has investigated the link between institutional standards and the arrival of gross and foreign direct investment (FDI) of bilateral causes. For the purpose of this analysis, the study used data from the annual time series that stretched from 1986 to 2019. Environmental procedures such as ADF, PP, Bound Test and ARDL were applied to achieve experimental results. The research takes into account a number of factors such as the Primary Sector of Direct Foreign Investment (FDIPR), Secondary Sector of Direct Foreign Investment Inflow (FDIR), Direct Foreign Investment Inflow Services Sector, Arrival of Gross (FDI), Overall Fixed Capital Formation (GFCF), Export (EX), Infrastructure Index and Inflation Standards (IQ). Moral evidence means that high levels of quality of institutions attract both overall and foreign direct investment, resulting in higher levels of quality of the institution.

Salim and Said will conduct research in 2021 to determine whether governance standards moderate the impact of pension funds on expansion of stock markets at the domestic level. The sample panel data includes wealthy countries as well as developing countries and was reviewed between 1996 and 2016. To achieve experimental results, methods of acometric approach such as common integrated mean group and enhanced mean group have been deployed. These methods have been applied in many research studies. The most important findings show that this is important for a number of specific countries represented on the panel, despite the fact that the influence of national level governance is modest for the entire pattern of nations. This shows that the level of governance overseeing the activities of the financial system in several economies may influence the choice of institutional investors in terms of deployment of cash required for setting up stock markets.

In a clear manner, Qureshi et al (2021), investigates the one-of-a-kind connection between foreign direct investment (FDI), inflation, and the turn of events in the financial market (2021). The Panel Vector Autorigranus (PVAR) model was utilised in this study with regard to the overall method for second gauges to survey connection steady in both produced and non-industrial nations between the years 1996 and 2018. These nations include of both long-established states and newly

independent nations. The study looked at a variety of factors, such as contamination, exchange, foreign direct speculation, gross domestic product, domestic credit to the secret region, and exchanging scale. The findings indicate that (main areas of strength for bad) guidelines and to an extreme (low) level of contamination increases venture and monetary growth.

Makoni (2021) conducted an experimental investigation to determine whether there were links between the growth of stock markets, institutional standards and foreign direct investment. The Random Effect Model, Estimated Approach, was applied throughout the study to determine the inter-relationship between African countries from 2009 to 2016. The researchers used various variables such as foreign direct investment (FDI), stock markets development (stock market development), institutional standards (institutional standards), real GDP growth rate (real GDP growth rate), inflation rate (inflation rate), government spending (government spending), interest rate (interest rate), trade openness, according to results There is a convincing and statistically important link between direct foreign growth. Investment and performance of stock markets. On the other hand, institutional standards had a negative impact on the arrival of foreign direct investment (FDI), which meant that countries with weak institutions would find it difficult to attract foreign direct investment.

Shitto et al (2021) study analyses the roles played by institutional standards and human capital in natural resource endowments, direct foreign investment and economic development in the MENA region. For this reason, the study looked at panel data from THE MENA countries spread from 1990 to 2017. The study looked at a number of different variables including GDP, GCF, government size, human capital and FDI. ARDL Bound Testing Integration Approach ensures that variables under consideration have a track record of confidence over the long term. Experimental research shows that a rich natural resource stipend is consistently associated with economic growth, while the impact of human capital can be either positive or negative, with more significant negative effects later. In places where the overall measure of institutional standards provides a disappointing estimate, separate measures of institutional standards once again provide a complex picture. It has been shown that human capital MENA is able to reduce the negative impact of FDI on the economy of the region. Foreign Direct Investment (FDI) similarly stimulates growth in the short term, but not in the very long term.

Utilizing information from the yearly time series from 1990 to 2012 and the Autoregressive Distributed Log Model, Bakawada and Tayachi (2021) explore the effect of unfamiliar direct speculation (FDI) on the advancement of currency markets in Saudi Arabia. His review centers around the period from 1990 to 2012. The review considers different variables including GDP, financial exchange advancement and FDI. This will bring about expanded unfamiliar direct venture (FDI) and severe guidelines prompting expanded development of private protections. Unfamiliar Direct Investment (FDI) contributes as an extra consider the development of the Saudi financial exchange. The positive relationship hypothesis was built up by the way that unfamiliar direct speculation (FDI) assumed a critical part in the ascent of the Saudi financial exchange.

LE and KIM (2021) tackle unfamiliar direct venture (FDI) outflows from Asian nations from 2009 to 2017 to dissect the effect of institutional guidelines on unfamiliar direct speculation (FDI) inflows. South Korea, Japan, China, Singapore and Hong Kong are the five nations in Asia with the most exceptional economy. The gravity model was applied to research the connection between institutional principles and direct unfamiliar speculation (FDI) streams. The regression design takes into account a number of independent variables, and the Bizen model is used to select the very best variables to add to the average (BMA) assessor analysis. According to the results, factors

such as the size of population of both the home country and the partner country, the distance between the two countries geographically, the number of countries that trade with each other, the availability of workers, economic freedom, tariff rates and government capacity affect foreign direct investment from Asian countries.

Saliya (2022), First, to investigate macroeconomic and institutional factors that affect stock market growth (SMD) in Fiji. Second, to investigate factors that have contributed to the extended slowdown of the South Pacific Stock Exchange (SPX) in Fiji from 1996-2018. ARDL Bound Testing Integration Approach ensures that variables under consideration have a track record of confidence over the long term. The research takes into account various factors including GDP, income level, inflation, development of banking industry, liquidity of stock market, foreign direct investment (FDI), investment, rule of law, effectiveness of government, accountability and voice, control of and regulacorruption tory standards.

3. Theoretical Background

3.1 Modern Portfolio Theory

Modern portfolio theory, also known as MPT, is an investment concept that enables you to choose from a selection of investment opportunities that create same portfolio to reap maximum benefits with market risk, which is much lower than the number of basic investments or assets. This allows investors to reap maximum benefits with market risk, much lower than the number of basic investments or assets. Modern Portfolio Theory, also known only as MPT, is an investment strategy that encourages investors to invest with the intention of reducing risk while simultaneously increasing profits. The current portfolio theory is a helpful source for investors as it enables them to choose a variety of assets for the purpose of diversity and then combine all their investments into the same portfolio. All assets chosen in principle are combined in such a way that they reduce market risk through diversification while at the same time offering investors satisfactory rates of profit over the long term.

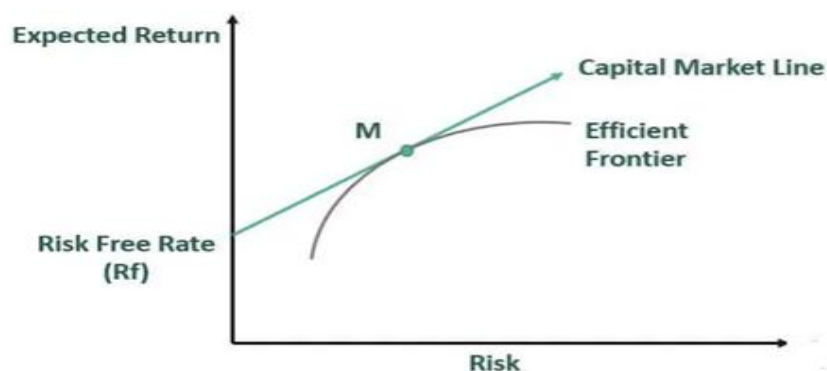


Figure 3.1: Modern Portfolio Theory¹

There is one person who wants to invest in the portfolio. They had a choice between two portfolios, which are as follows:

¹ <https://www.toolshero.com/strategy/modern-portfolio-theory/>

- The first portfolio is made up of a combination of bonds and other equities that delivered an average annual return of 10% but varied to 15% (in this scenario, profits usually range between -5 and + 25 percent).
- On the other hand, the second portfolio is made up of a combination of bonds and other equities, which provided an average annual return of 10%, compared to a difference of only 3%. (In this case, there is usually a difference between 7% and 13% in profit)

Which investment portfolio should a person review as per the current portfolio theory?

- In both cases, the estimated return on investment is 10%. The first portfolio can expect a return of up to 25%, but it is not very realistic as the return can range from 5 to 25%.
- Nevertheless, a lower return range of between 7% and 13% in the second portfolio may not be as appealing to the investor as the first investment, but it is believed that the investor will not lose money and thus the investment is less risky.
- Modern portfolio theory states that an investor should invest with the aim of reducing risk and making maximum returns, so in this situation one would choose another portfolio, as average returns are the same with the minimum risk.

3.2 The Heckscher–Ohlin Model

One of the earliest ideas describing FDI activities was the Heckscher Ohlin model, often known as factor endowment hypothesis. It is a well-known international trade theory that defines economic activity, especially among nations with different characteristics. According to this view, nations with more element endowment resources (such as labour force, land, capital and entrepreneurship) attract more direct foreign investment. The hexacher is based on the theory of comparative advantages of the O'Lean model David Ricardo (1817), which states that foreign transactions are more likely to occur in nations with lower manufacturing costs.

3.3 Institutional Theory

The relevance of institutions in luring foreign direct investment is the main theme of the North's Institutional Theory (1990). According to North (1990), good institutions reduce production and transaction costs resulting in increased economic activity. On the other hand, bad and weak institutions raise the level of uncertainty and cost of production. According to the research conducted, proper economic institutions including property rights and rule of law are necessary for distribution of resources. Investment costs are likely to be high in an institutional environment that marks intellectual property theft, ineffective governance and widespread corruption. The flow of foreign direct investment (FDI) is limited by higher investment costs, as investors are hesitant to enter such high cost areas. Institutional stability is vital to woo FDI as a result.

3.4 Internalization Theory

This theory seeks to explain the reasons for expansion of multinational corporations and acquisition of direct investment from other countries. Weekly and Casen came up with this theory in 1976, and then Henart and Keison expanded it in 1982 and 1983, respectively. Kose introduced this concept within the framework of the national economy in 1937, and Hammer did it within the framework of an international economy in 1976. In his thesis for a doctorate degree, Hymer identified two basic factors that determine foreign direct investment (FDI). One of them was the end of the competition. The second factor was competitive advantages that specific companies occupy others in a particular sector (Hammer, 1976).

Bakley and Casson, who are credited with laying the foundation for the idea, showed that international corporations regulate their internal activities in such a way that various benefits can be achieved, which are later used. While Dunning acknowledges the importance of internal theory and incorporates it into its fascinating theory, it argues that this explanation is only part of the flow of foreign direct investment (FDI). Henart (1982) spreads on the concept of introspection by building patterns that bridge the gap between vertical and horizontal integration.

4. Data and Methodology

4.1 Model Specification

The research project aims to determine whether there is any link between the growth of the stock market in Pakistan, foreign direct investment and the quality of the country's institutions. The variables considered dependent in this investigation are Stock Market Development (SMD) and Foreign Direct Investment (FDI), while variables considered independent are exchange rates, inflation rates and institutional standards including Control of Corruption, Political Stability, Government Effectiveness, Voice and Accountability, Regulatory Quality, and Rule of Law.

4.2 Framework

The current study utilized two frameworks. First one is the Nexus among Stock Market Development, Foreign Direct Investment (FDI) and Institutional Quality and second is the Nexus among Foreign Direct Investment (FDI), Stock Market Development and Institutional Quality.

4.2.1 Framework 1

The figure 4.1 below is the framework of the Nexus among Stock Market Development, Foreign Direct Investment (FDI) and Institutional Quality in Pakistan.

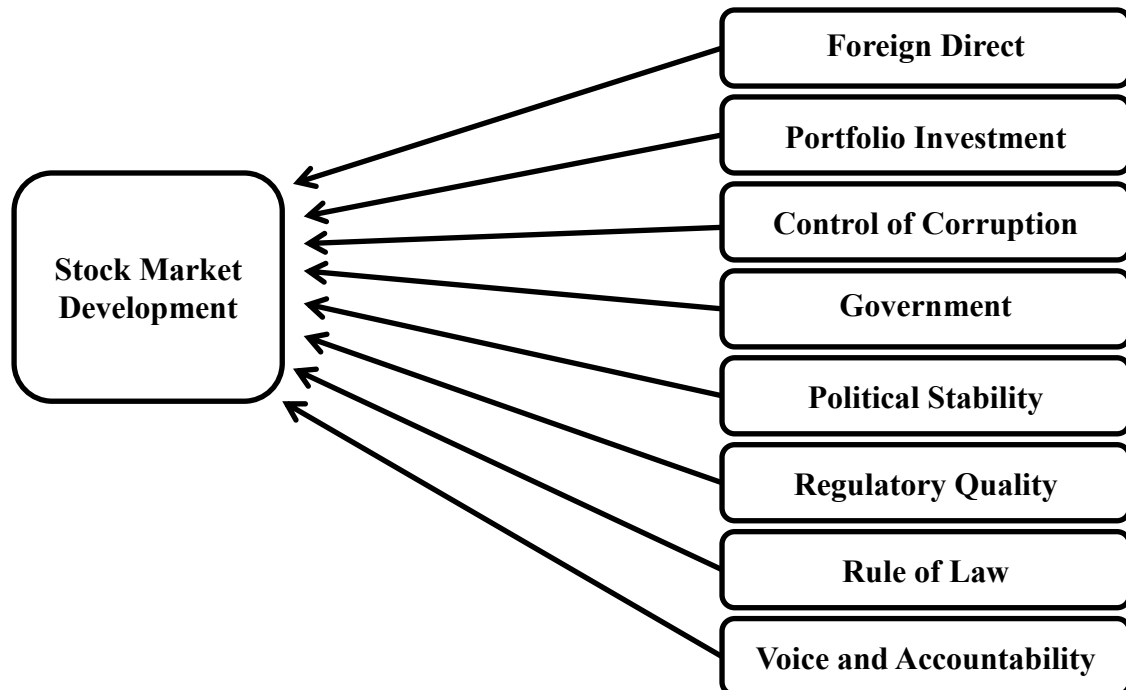


Figure 4.1: Stock Market Development, Foreign Direct Investment and Institutional Quality

4.2.2 Framework 2

The figure 4.2 below is the framework of the Nexus among Foreign Direct Investment (FDI), Stock Market Development and Institutional Quality.

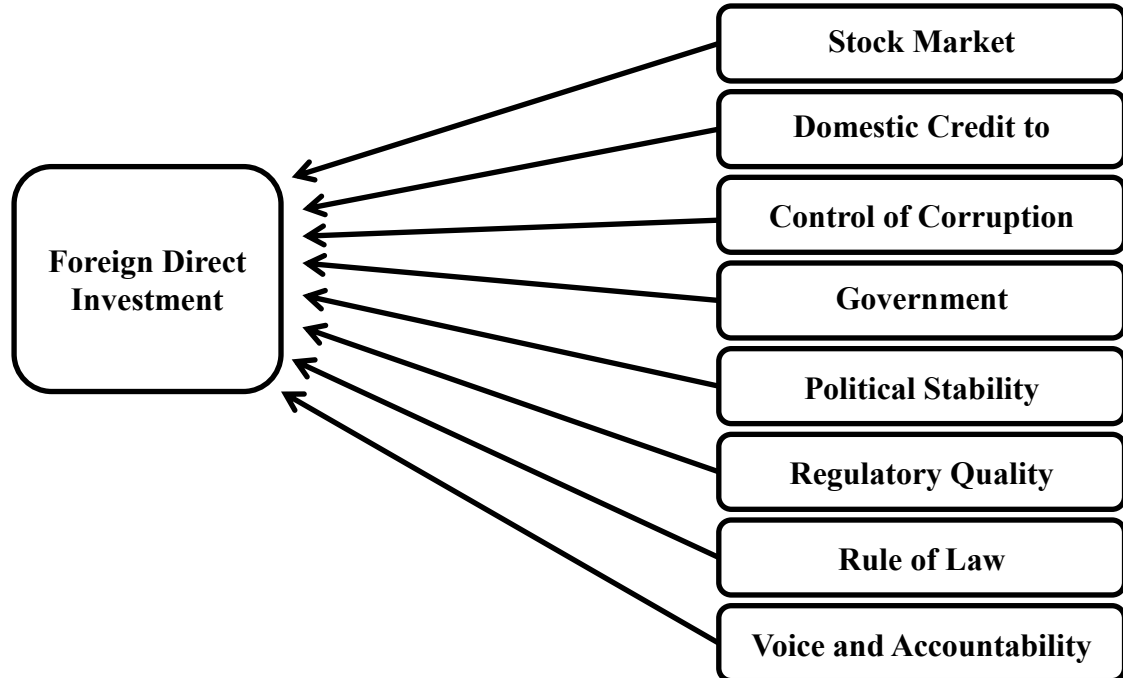


Figure 4.2: Foreign Direct Investment, Stock Market Development and Institutional Quality

4.3.3 Mathematical Equation

The Mathematical Equations of this study are:

$$SMD = f (FDI, PFI, COC, GE, PS, RQ, ROL, VA) \dots\dots\dots (4.1)$$

$$FDI = f (SMD, DCPS, COC, GE, PS, RQ, ROL, VA) \dots\dots\dots (4.2)$$

4.3.4 Econometric Equation

The Econometric Equations of this study are:

$$SMD_t = \beta_0 + \beta_1 FDI_t + \beta_2 PFI_t + \beta_3 COC_t + \beta_4 GE_t + \beta_5 PS_t + \beta_6 RQ_t + \beta_7 ROL_t + \beta_8 VA_t + \epsilon_t \dots (4.3)$$

$$FDI_t = \beta_0 + \beta_1 SMD_t + \beta_2 DCPS_t + \beta_3 COC_t + \beta_4 GE_t + \beta_5 PS_t + \beta_6 RQ_t + \beta_7 ROL_t + \beta_8 VA_t + \epsilon_t \dots (4.4)$$

Where,

SMD = Stock Market Development

FDI = Foreign Direct Investment

PFI = Portfolio Investment

DCPS	= Domestic Credit to Private Sector
COC	= Control of Corruption
GE	= Government Effectiveness
PS	= Political Stability
RQ	= Regulatory Quality
ROL	= Rule of Law
VA	= Voice and Accountability
β_0	= Intercept
$\beta_{12345678}$	= Slope of Coefficients
ϵ	= Error Term

4.4 Summary of Variables

Below is a summary of the dependent and independent variables that are used in the current study in Table 4.1. Data measurement and sources have also been indicated.

Sr. #	Variables	Description	Measurement	Sources
1	SMD	Stock Market Development	Local Companies % of GDP	WDI
2	FDI	Foreign Direct Investment	Inflow % of GDP	WDI
3	PFI	Portfolio Investment	% of GDP	WDI
4	DCPS	Domestic Credit to Private Sector	% of GDP	WDI
5	COC	Control of Corruption	Estimate	WGI
6	GE	Government Effectiveness	Estimate	WGI
7	PS	Political Stability	Estimate	WGI
8	RQ	Regulatory Quality	Estimate	WGI
9	ROL	Rule of Law	Estimate	WGI
10	VA	Voice and Accountability	Estimate	WGI

Source: World Bank Indicator and Worldwide Governance Indicators

4.6 Data Sources

To find out the Nexus among Stock Market Development, Foreign Direct Investment (FDI) and Institutional Quality in case of Islamic Republic of Pakistan, the current study utilized secondary time series data of Pakistan. The data is collected of 25 Years from 1996 to 2020. Data will be accumulated form official website of World Development Indicator (WDI) and Worldwide Governance Indicators (WGI).

4.7 Application of Econometric Model

The current study used various econometrics models to explore an association between stock market development, institutional quality and foreign direct investment in the case of Pakistan.

4.6.1 Time Series Data Analysis

Time series data analysis is a statistical technique used to make a result about the prototype of data called time series analysis. It is used to view the prototype of fluctuations in statistical information at regular intervals of time. It is also used to review the association between IV and DV in a certain period of time. In the current study time, the analysis of the series is used to establish an association between stock market development, institutional quality and Foreign Direct Investment.

4.7.2 Unit Root Analysis

Unit root test is a statistical method applied to stationary testing of time series data from 1996 to 2020. The current study (ADF) used indicates the routine of the existing imported dicky filter, unit root test selected variables.

4.7.3 Multicollinearity Analysis

The phenomenon known as multi-linearity, also known as the collinearity, describes a situation in which a predicting variable in a multiple regression model can be predicted with a great deal of accuracy from others in the model. In this particular situation, multiple regression coefficient estimates may change unexpectedly as a result of minute modifications made to models or data. The predictability of the model, or the dependence of the model as a whole, is no less than multi-lariat than it already exists within the sample dataset. Overall, it has little effect on the overall predictions made by the market. The duo-wise correlation matrix and the virenus inflation factor have both taken a look at the issue.

4.7.4 Ordinary least Square (OLS) Estimates

In data, the normal minimum square (OLS) is applied to calculate unknown parameters in linear regression model. OLS uses a minimum square rule to determine parameters associated with linear function of a pair of independent variables. Minimize the number of squares of non-similarity between experimental dependent variables and expected by linear function within the data set provided.

4.7.5 Autocorrelation Analysis

In the context of discrete time, self-correlation refers to the correlation of a signal in which delaying is a copy of the delay in itself. This type of correlation is also known as a series of correlations. In scientific terms, it refers to the extent to which two observations match the passage of time between them. The process of analysing self-correlation is a mathematical tool to find reoccurring patterns, such as an existence associated with a regular signal that is obscured by noise and determines the missing basic frequency in a signal that is implied by its hormonal frequency. These two examples are examples of discovering reformer patterns. In the field of signal processing, it is often used for the purpose of studying set of values or functions, such as time domain signals. The Breusch-Godfrey Serial Vaccination LM test is used to investigate the matter.

4.6.6 Heteroscedasticity Analysis

A random direction is called Heteroskedasticity (Heteroskedastic, ancient Greek hetero "different" and skedastic "spread" if the variation of random disturbance varies in a way that varies between the elements of the direction. In this particular example, the variation is measured by the differentiation of all the different methods that can be used to indicate the amount of statistical spread. Therefore, the absence of heteroskedasticity is called homoscedastic. Compilation of residents' income data at several different locations is a good example of this problem. In regression analysis and analysis, the presence of Heteroskedasticity is a major cause of concern, due to the fact that its presence nullifies examinations of statistical importance, which work under the assumption that all modelling mistakes differ equally. While the traditional minimum square assessor is still objective in the absence of heteroskedasticity, it is inefficient and should not be used. Another method should be chosen instead. The Breusch Pagan Godfrey Test solves the specific problem that has been brought to light.

4.6.7 Stability Test

Planning the total amount of the refracted remains, Cusum and the total amount of the refracted remains were allowed by quad CUSMQ to assess the consistency of the estimated coefficient. Both these measures are the total amount of reformer remains. Since the total amount of squares of the recursive CUSMSQ is also within 5% of the level of importance, the result indicates that it is stable. This is because the total amount of the remaining CUSUM remaining is within 5 per cent of the level of importance. Further, the total amount of squares of the recursive CUSMSQ is also within 5% of the level of importance.

5. Results and Discussion

5.1 Descriptive Statistics

Description data is a technique used to summarize the larger feature of the data collected. The results of the descriptive static of dependent variables and independent variables are given in table 5.1 on the next page. Table 5.1 below shows a summary of the description statistics of selected variables. The front row shows an average (23.29395) of SMD, FDI, PFI, DCPS, ER, INF, COC, GE, PS and ROL, (1.159146), (0.143038), (21.25718), (80.40182), (7.879842), (-0.939303), (-0.598907), (-1.992951) and (-0.801925). The medium value of SMD, FDI, PFI, DCPS, ER, INF, COC, GE, PS and ROL (27.20730), (0.819523), (0.049000) is, (20.20.20. 13964), (70.40803), (7.598684), (-0.995073), (-0.624155), (-2.265187), and (-0.799213) are in order. The front row shows maximum values for selected variables and also shows the minimum values of data for selected variables. Moreover, the table shows the values of slanting and cartridges.

Table 5.1: Results of Descriptive Statistics

	SMD	FDI	PFI	DCPS	COC	PS	GE	ROL	RQ	VA
Mean	23.29	1.15	0.14	21.25	-0.83	-1.99	-0.59	-0.85	-0.63	-0.84
Median	27.20	0.81	0.04	20.13	-0.93	-2.26	-0.62	-0.79	-0.63	-0.83
Mini	45.74	3.66	1.27	28.73	-0.76	-1.10	-0.37	-0.62	-0.47	-0.52
Maxi	0.16	0.37	-0.54	15.38	-1.22	-2.81	-0.81	-0.98	-0.90	-1.22
Std. Dev	12.64	0.88	0.45	4.26	0.14	0.61	0.14	0.10	0.102	0.18
Skewness	-0.17	1.78	0.84	0.21	-0.49	-0.34	-0.02	0.07	-0.38	-0.28

Kurtosis	1.99	5.07	3.54	1.63	2.02	1.56	1.65	2.12	3.22	2.497
JB	1.74	17.79	3.29	2.12	1.99	2.62	1.87	0.829	0.696	0.620
Prob.	.055	0.00	0.19	0.34	0.36	0.26	0.39	0.660	0.705	0.733
Sum	582.3	28.91	3.57	531.4	-23.48	-49.8	-14.9	-20.04	-16.5	-21.9
Sum² Dev	383.5	18.99	4.95	437.5	0.47	9.07	0.49	0.24	0.262	0.874
Obs	25	25	25	25	25	25	25	25	25	25

In statistics, the term "skewness" refers to an unequal deviation from the central tendency of data distribution or "meaning". If we claim that data distribution is skewed, then meaning, medium and mood will all be the same. This means that the meaning will be straight at the centre of the bell curve and in the top point. When data follows a general distribution and the bell curve is perfectly balanced, both the middle and the mean will always be equal to the same value.

Here we see that; SMD, COC, GE and PS are negatively skewed, because their mean values are less than their median values. While other variables like FDI, PFI, ER, INF, DCPS, ROL and INF are positively skewed, as their mean values are higher than their median values.

Now; the front row presents the values of the Kurtosis. The apostasy is used to calculate the smoothness of the dataset as compared to the normal distribution. The cartridge value of the general distribution is equal to 3. If the value of the cartridge is more than 3, it means that the distribution of probability is at a very high peak and is known as Leptokurtosis. If the value of the cartridge is less than 3, it means the possibility indicates the smoothness of the distribution data and is known as the Platy-kurtosis.

Here, in Table 5.1 above, the cartridges of FDI, PFI, ER and INF are priced at more than 3, so these variables are leptokurtic. In addition, the values of the cross-sis of SMD, DCPS, COC, GE, PS and ROL are less than three, so these variables are platonic.

5.3 Unit Root Analysis

This section will offer the ADF unit root test for stationery purpose.

Table 5.2: Results of ADF Unit Root Test

Variables	At level		1st at difference		Conclusion
	Intercept	Trend & Intercept	Intercept	Trend & Intercept	
SMD	0.0335	-----	-----	-----	I (0)
FDI	0.0355	-----	-----	-----	I (0)
PFI	0.0646	-----	-----	-----	I (0)
DCPS	0.0108	-----	-----	-----	I (0)
RQ	0.0049	-----	-----	-----	I (0)
VA	0.0051	-----	-----	-----	I (0)
COC	0.0704	-----	-----	-----	I (0)
GE	0.0038	-----	-----	-----	I (0)
PS	0.0385	-----	-----	-----	I (0)
ROL	0.0003	-----	-----	-----	I (0)

The results of the Augmented Dickey Fuller (ADF) test are reported in Table 5.2. These results show that not all variables are stationary at the same level. We have seen that SMD, PFI, INF and COC are stationary at the level and intercept. Other variables are FDI, DCPS, ER, GE, PS and ROLs are stationary and intercepted at the first difference.

5.4 Empirical Results of Model 1

This section shows the first model, stock market development and FDI experimental results with four institutional factors. This section includes pair – Wise Convergence Matrix, Variance Inflation Factors, OLS, Test for Auto-Collation and The Results of Heteroskedasticity and Stabilization Test.

5.4.1 Pair – Wise Correlation Matrix

Correlation is a method used to calculate association between DVs and IV. Pair – Wise interconnection is essential as multicollinearity issues are recognized between variables. The high correlation between variables shows multicollinearity anxiety.

Table 5.3: Results of Pair – Wise Correlation Matrix

Variables	SMD	FDI	PFI	COC	GE	PS	ROL	RQ	VA
SMD	1								
PFI	0.288	1							
FDI	0.251	0.541	1						
COC	0.105	0.019	-0.096	1					
GE	-0.148	0.228	0.149	0.221	1				
PS	-0.473	-0.139	-0.059	-0.198	0.691	1			
ROL	0.117	-0.260	-0.126	-0.176	-0.053	0.119	1		
RQ	-0.062	0.421	0.308	-0.214	0.043	0.076	0.273	1	
VA	0.089	-0.025	-0.001	-0.357	-0.292	-0.078	0.501	0.722	1

Table 5.3 below – Wise Correlation indicates the results of matrix. This shows that high values indicate a high correlation between variables. The overall results indicate that the data set does not have multicollinearity.

5.4.2 Results of Ordinary Least Square Method

This section will present the results of the Ordinary Least Square (OLS) procedure. Table 5.4 shows OLS results.

Table 5.4: Results of Ordinary Least Square (OLS)

Dependent variable: SMD				
Method: Least square				
After adjustment observations 25 (1996 – 2020)				
Variables:	Coefficient	Std. Error	t-statistics	Prob.
FDI	0.897588	0.327894	2.737435	0.0153
PFI	0.213827	0.180916	0.181910	0.0535
RQ	0.681010	43.36615	-2.232389	0.0393
VA	0.424667	23.78507	1.692098	0.0089

COC	-0.200647	1.621489	-2.590610	0.0205
GE	0.710913	1.739421	-2.133419	0.0498
PS	-0.696178	0.394852	1.763134	0.0282
ROL	0.756719	1.314913	-1.335997	0.0740
C	-6.578735	3.181964	-2.067508	0.0564
SMD (-1)	-0.032861	0.153700	-0.213802	0.8336
R Squared:	0.886134	Adj. R. Squared:	0.826073	
F statistics	5.813661	Durban Watson Stat:	2.179083	
Probe (F-statistics)	0.001736	Probe (F statistics)	0.000162	

The worth of FDI's coefficient in table 5.4 above makes sense of the decidedly huge (0.0153) influence on Stock Market Development (SMD). Exploratory outcomes recommend that a 1-unit expansion in FDI will prompt a development in financial exchange improvement (0.897588).

The worth of the coefficient of Portfolio Investment (PFI) shows emphatically critical (0.0535) influence on Stock Market Development (SMD). Trial results propose that the 1-unit expansion in Portfolio Investment (PFI) will prompt a (0.213827) rate expansion in Stock Market Development (SMD).

The worth of the coefficient of Regulatory Quality (RQ) likewise shows huge (0.0393) positive effect on securities exchange improvement (SMD). The exploratory outcomes recommend that the 1-unit expansion in Regulatory Quality (RQ) will prompt a (0.681010) rate expansion in Stock Market Development (SMD).

The worth of Voice and Accountability (VA) shows huge adverse consequence on Stock Market Development (SMD). Exploratory outcomes propose that a 1-unit expansion in Voice and Accountability (VA) will prompt (0.424667) Percentage decrease in Stock Market Development (SMD).

The worth of the Coefficient of Control of Corruption (COC) additionally shows critical adverse consequence on Stock Market Development (SMD). That's what exploratory outcomes recommend, the 1-unit expansion in the COC will prompt it (- 0. 200647) Percentage decrease in Stock Market Development (SMD).

The worth of the coefficient of government viability (GE) likewise shows huge negative (0.0498) influence on securities exchange improvement (SMD). That's what exploratory outcomes propose, a 1-unit expansion in GE will prompt it (0. 710913) rate decrease in Stock Market Development (SMD).

The worth of the coefficient of political dependability (PS) likewise shows adversely huge (0.0282) influence on securities exchange improvement (SMD). That's what exploratory outcomes recommend, 1 unit expansion in PS will lead it (- 0. 696178) Percentage decrease in Stock Market Development (SMD).

The worth of the coefficient of law and order additionally shows positive critical (0.0740) influence on securities exchange advancement (SMD). Trial results propose that, 1 unit expansion in ROL enlarges this will prompt a (0.756719) rate expansion in Stock Market Development (SMD).

5.4.3 Autocorrelation

The issue of auto correlation is dealt with by serial mutual LM test. According to this test, important value shows the existence of Auto-correlation and shows of insignificant value do not exist in themselves. The results of serial correlation LM test are given below:

Table 5.5: Serial Correlation LM Test Results:

Breusch – Godfrey Serial Correlation Test:			
F Statistics:	1.582292	Probe F (229):	0.2426
Obs*R²:	4.698545	Probe Chi – Square:	0.0954

The results indicate that the probability values of the LM test are insignificant (0.2426), indicating that the problem of autocorrelation is not present in the dataset.

5.4.4 Heteroskedasticity Test

The Breusch-Pagan-Godfrey Test. has tackled the problem of heteroskedasticity. According to this test, the important value shows the existence of heteroskedasticity and shows the insignificant value that heteroskedasticity does not exist. The results of The Breusch Pagan – Godfrey Test are given below:

Table 5.6: Serial Correlation LM Test Results:

Breusch Pagan - Godfrey Test:			
F Statistics:	1.725216	Probe F(229):	0.1921
Obs*R²:	13.43428	Probe Chi – Square:	0.2004

The results indicate that, the probability values of the heteroskedasticity test are insignificant (0.1921), indicating that the dataset does not have a problem with heteroskedasticity.

5.5 Empirical Results of Model 2

This section shows the experimental results of the 2nd model, FDI and stock market development with four institutional factors. This section includes pair – Wise Convergence Matrix, Variance Inflation Factors, OLS, and Test for Auto-Collation and The Results of heteroskedasticity and Stabilization Test.

5.5.1 Pair – Wise Correlation Matrix

Correlation is a method used to calculate association between DVs and IV. Pair – Wise interconnection is essential as multicollinearity issues are recognized between variables. The high correlation between variables shows multicollinearity issue.

Table 5.7: Results of Pair – Wise Correlation Matrix

Variables	SMD	FDI	DCPS	COC	GE	PS	ROL	RQ	VA
SMD	1								
DCPS	0.305	1							
FDI	0.718	-0.056	1						
COC	-0.288	0.462	-0.693	1					

GE	0.450	0.098	0.363	0.045	1				
PS	-0.158	-0.445	0.383	-0.578	-0.360	1			
ROL	-0.258	0.109	-0.207	0.273	-0.076	0.138	1		
RQ	0.027	0.076	-0.326	0.412	-0.483	-0.164	-0.187	1	
VA	0.223	-0.118	0.481	-0.429	-0.517	0.679	-0.045	0.255	1

Table 5.7 Pair above – Wise correlation indicates the results of matrix. This shows that high values indicate a high correlation between variables. The overall results indicate that the data set does not have multi-collinearity.

5.5.2 Results of Ordinary Least Square Method

This section will present the results of the Ordinary Least Square (OLS) procedure. Table 5.4 shows OLS results.

Table 5.8: Results of Ordinary Least Square (OLS)

Variables depending: FDI				
Method: Least square				
After adjustment observations 25 (1996 – 2020)				
Variables:	Coefficient	Std. Error	t-statistics	Probes.
SMD	0.025594	0.006156	4.157955	0.0008
DCPS	0.082863	0.038895	2.130418	0.0472
RQ	-0.014781	0.003839	-3.850218	0.0016
VA	0.119810	0.023066	5.194333	0.0001
PS	-0.517503	0.124331	-4.162289	0.0008
ROL	0.546601	0.726803	0.752062	0.0637
COC	0.562506	0.842973	3.039842	0.0083
GE	0.166336	0.597818	5.296492	0.0001
C	0.145453	1.391560	2.978996	0.0094
FDI (-1)	0.294942	0.110089	2.679132	0.0172
R Squared:	0.931258	Adj. R Squared:	0.894595	
F Statistics:	25.40079	Durban Watson State:	1.805194	
Probe (F-Statistics)	0.000000	Probe (F statistics)	0.000000	

In Table 5. 8 Above, the worth of the coefficient of financial exchange advancement (SMD) makes sense of decidedly critical (0.0008) influence on unfamiliar direct speculation (FDI). Exploratory outcomes propose that a 1-unit expansion in Stock Market Development (SMD) will prompt a (0.0255.94) rate expansion in Foreign Direct Investment (FDI).

The worth of the coefficient of homegrown credit to the confidential area (DCPS) shows decidedly huge (0.0472) influence on unfamiliar direct venture (FDI). Trial results propose that a 1-unit expansion in homegrown credit to the confidential area (DCPS) will prompt a development of (0.082863) in unfamiliar direct speculation (FDI).

The worth of the coefficient of Regulatory Quality (RQ) shows huge adverse consequence on unfamiliar direct speculation (FDI). The exploratory outcomes propose that the 1-unit expansion in Regulatory Quality (RQ) will diminish unfamiliar direct venture (FDI) by (- 0.014781).

The worth of Voice and Accountability (VA) duplication shows huge adverse consequences on unfamiliar direct venture (FDI). Trial results propose that the 1-unit expansion in Voice and Accountability (VA) will prompt a (0.119810) expansion in unfamiliar direct speculation (FDI).

The worth of the coefficient of political soundness (PS) additionally shows adversely critical (0.0008) influence on unfamiliar direct speculation (FDI). Exploratory outcomes propose that a 1-unit expansion in political soundness will prompt a (- 0.517503) rate decrease in unfamiliar direct speculation (FDI).

The worth of the coefficient of law and order likewise shows decidedly critical (0.0637) influence on unfamiliar direct speculation (FDI). Trial results propose that a 1-unit expansion in law and order will prompt it (0. 546601) Percentage expansion in Foreign Direct Investment (FDI).

The worth of coefficient of control of debasement (COC) additionally shows critical (0.0083) positive effect on unfamiliar direct speculation (FDI). Exploratory outcomes propose that a 1-unit expansion in debasement control will prompt a (0.562506) rate decrease in unfamiliar direct speculation (FDI). It appears to be that the host nation ought to work on monetary opportunity and check defilement to draw in more FDI. This outcome relates to Bakawada, L, and Tayachi, T. (2021).

The worth of the duplication of Government Effectiveness (GE) likewise shows huge positive (0.0001) influence on unfamiliar direct venture (FDI). Exploratory outcomes propose that a 1-unit expansion in government viability will prompt (0. 166336) Percentage expansion in Foreign Direct Investment (FDI).

5.5.2 Autocorrelation

The issue of auto correlation is dealt with by serial mutual LM test. According to this test, important value shows the existence of Auto-correlation and shows of insignificant value do not exist in themselves. The results of serial correlation LM test are given below:

Table 5.9: Serial Correlation LM Test Results:

Breusch – Godfrey Serial Correlation Test:			
F Statistics:	1.305668	Probe F (229):	0.3043
Obs*²:	4.014524	Probe Chi – Square:	0.1344

The results indicate that the probability values of the LM test are insignificant (0.3043), indicating that the problem of autocorrelation is not present in the dataset.

5.5.3 Heteroskedasticity Test

The Breusch-Pagan-Godfrey Test. has tackled the problem of heteroskedasticity. According to this test, the important value shows the existence of heteroskedasticity and shows the insignificant value that heteroskedasticity does not exist. The results of The Breusch Pagan – Godfrey Test are given below:

Table 5.10: Serial Correlation LM Test Results:

Breusch Pagan - Godfrey Test:			
F Statistics:	0.732032	Probe F(229):	0.6630
Obs*²:	6.738991	Probe Chi – Square:	0.5650

The results indicate that, the probability values of the heteroskedasticity test are insignificant (0.6630), indicating that the dataset does not have a problem with heteroskedasticity.

5.6 Stability Test

To scrutinize the Stability of the estimated coefficients, we have plotted the Cumulative Sum (CUSUM) of Recursive Residuals & Cumulative Sum (CUSUMQ) of Recursive Residual Square. The consequence indicates that it is Stable because CUSUM is within 5% level of significance and CUSUMSQ is also within limits of 5% significance level.

5.6.1 Cumulative Sum of Recursive Residuals (CUSUM)

The CUSUM chart and test are used to determine whether a procedure has strayed far away from its inferior value. The CUSUM chart is built with a mean value of the process serving as its focal point. When the total amount of standard deviation is beyond the predetermined limit, one can say that this process is "out of control."

5.6.1 Cumulative Sum of Recursive Residual Square (CUSUMSQ)

It is recommended to use the CUSUM of Square Test as it is very effective in identifying changes in conditional model parameters, regardless of whether the difference in regression error is included in the set of transmitted parameters, especially towards the end of the sample. This is because the CUSUM of Square test compares the amount of all squares in a set of data to determine whether the data is there or not.

5.6.3 Model 1 CUSUM & CUSUM Square

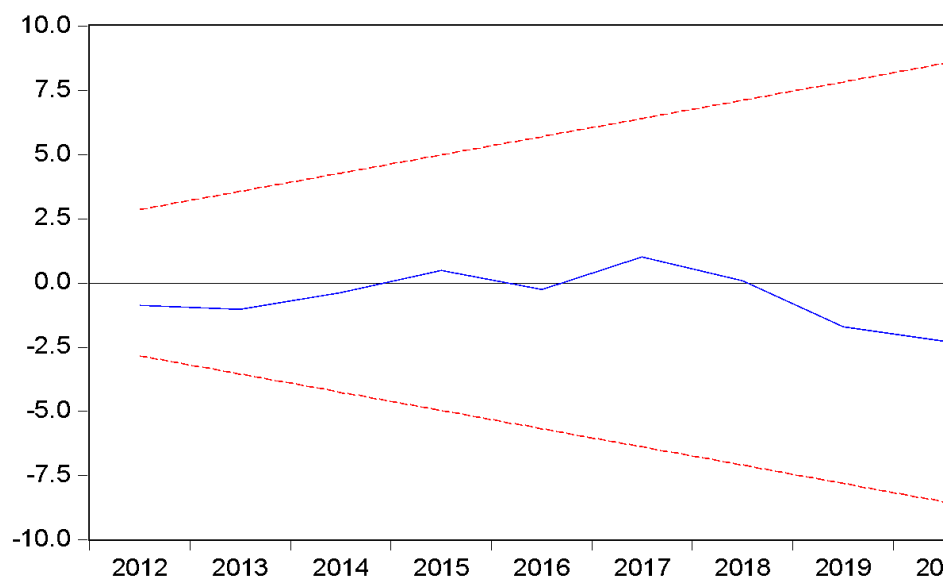


Figure 5.1: CUSUM of Model 1

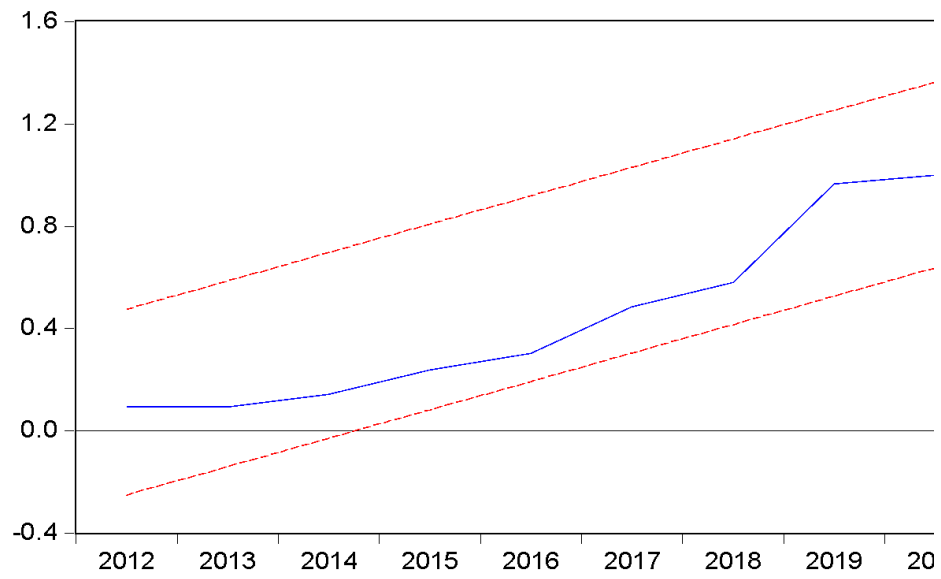


Figure 5.2: CUSUM Square of Model 1

5.6.4 Model 2 CUSUM & CUSUM Square

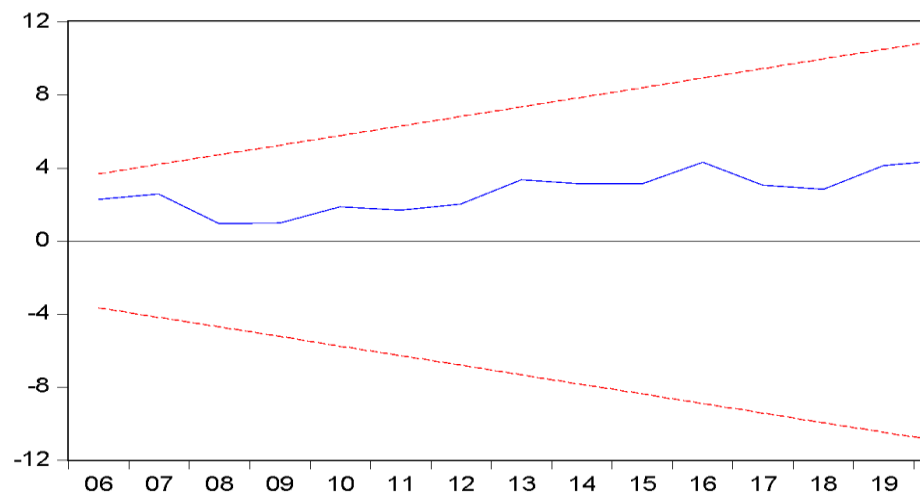


Figure 5.3: CUSUM of Model 2

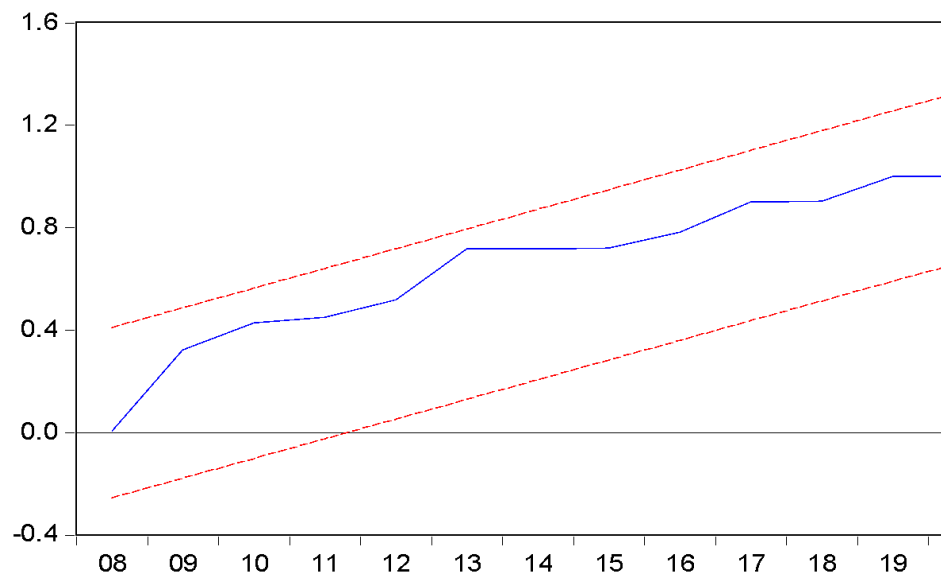


Figure 5.4: CUSUM Square of Model 2

5.7 Conclusion

The study in this paper discusses the results of various techniques. First, the study explains the results of the explanatory statistics, then the study also presents the results of the ADF unit root test, furthermore, the study also presents the results of the pair - wise correlation metrics and difference inflation factors. Furthermore, for the purpose of self-correlation and Heteroskedasticity problems, the study applied serial correlation LM test and Heteroskedasticity test. Further, the OLS procedure was applied in the study. In the last, the study also applied the stability test.

6. CONCLUSION & POLICY RECOMMENDATION

6.1 Conclusion

The principal objective of the ongoing review is to look at the nexus between financial exchange improvement, institutional quality and Foreign Direct Investment as Islamic Republic of Pakistan. For this reason, the review utilized yearly information during the period 1996 to 2021. Information is gathered from different sources including World Bank (WDI), our reality these information and State Bank of Pakistan (State Bank). More; the review investigated information with various strategies.

To begin with, the review makes sense of the aftereffects of the illustrative information. Besides, the review mirrors the discoveries of the pair - astute connection network, which recommends that there is no multicollinearity. The concentrate additionally applied the ADF unit course test for fixed reason. The review makes sense of the discoveries of auto-correlation and Heteroskedasticity, which expresses that the two issues don't exist. In this manner, the review applied the typical least square technique to track down relationship among IV and DV. In the last, the review applied THE CUSUM and THE CUSUM of Square for the solidness test. The trial consequences of the overall least square strategy clarified that constructive outcomes from securities exchange improvement, portfolio venture, direct unfamiliar speculation and trade rates

and institutional variables, including government viability and law and order, likewise emphatically affect financial exchange advancement. While other institutional variables, including debasement control and political soundness, adversely affected the development of the financial exchange. Expansion is likewise adversely affecting financial exchange improvement.

In the following model, securities exchange improvement on unfamiliar direct venture, homegrown credit to the confidential area and expansion R have had a positive effect from the conversion standard in Pakistan's CASE. Institutional variables, including government viability, law and order and checking debasement, likewise emphatically affect securities exchange development, and just political dependability adversely affects unfamiliar direct venture. The concentrate likewise applied CUSUM and Cusum Square tests for steadiness purposes.

6.2 Policy Recommendations

Based on the results, some policy implications must be recommended:

- Increasing institutional standards is an important condition for host countries to achieve FDI.
- Since it serves as the primary means of transferring money from depositors to borrowers, the stock market is an important component of a contemporary, market-based economic system. Since FDI supplements stock market growth, the Pakistani government should do everything possible to get FDI.
- The government should implement necessary measures to enhance the effectiveness and transparency of the basic market. This will strengthen government securities in the stock market as well as increase the performance and growth of the secondary market.
- The government should also support FDI in the stock market to create new competitiveness and employment prospects through new technology and skill transfers.
- Policy makers should prepare plans to promote FDI stocks (maintaining FDI) and provide incentives for long-term investment and stock market listings.
- Legislative measures are needed to protect effective corporate operations and investors that will improve institutional standards. These changes should seek to streamline the bureaucratic process to reduce barriers to entry of businesses, facilitate licensing and promote a business-friendly environment.

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